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AMERICAN

JOURNAL OF PHOTOGRAPHY.

VOLUME VIII.

PHILADELPHIA:
THOMAS H. McCOLLIN & CO., PUBLISHERS.
1887

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INDEX.

A

A few Photographic Points about the Yosemite, ... 215
Accessories, Legitimacy in judging the art value of pictures . . 96
Accessories, an essential element in judging of artistic effect . 3
Appropriateness of the Mount . 3
Arbitrary Classification 3
Albumenized Paper Silver Printing, 4
Amateur Photographers of New York 16, 23
Amateur enlarging 50
Annual Exhibition of Lantern Slides by the Phila. Society, 17
Annual Report of the President of N. Y. Amateur Society . . 87
About Values 21
Abstract of the Proceedings of the N. Y. Amateur Photographic Society 23
Apparatus for Coating Plates . . 34
Artificial Lighting in Photography, 44
Art in America 48
Architectural Photography . . . 55
Alkaline Developer for Gelatine Plates 58
Adcock W., studies 60
A Bengalese Bungalow 64
A new Platinum Process 81
A Journey through Arabia Petra with Camera 94, 118, 137
Award of Medals at Chicago Convention 146

B

Book Notices 15, 70
Beach F. C., Development of Lantern Slides with Pyro . . . 20
Bell William, Apparatus for Coating Plates 34
Bromide Paper, its practical application and successful working 37
Bromide Prints, Toning with Platinum 63
Bromide Paper, Variety of Tones in 80
Bromo-Albuminate of Silver for Rapid Printing 134
Bartlett John, Picture Making . . 38
" " Expression in Portraits 56
Bartlett John, Photographing by Gas Light 74
Bartlett, John, Dress in Photography 127
Bartlett John, Intensifying Gelatine Negatives 147
Bartlett John, Composition in Landscape 187
Backgrounds, Distemper 79
Bruns, Lieut O. L., Proper Exposure 115
Bengalese Bungalow 64
Bolton W. B., Intensification . . 133

Photographic Association of America 26, 68, 82, 101, 102, 121
Photographing at Niagara Falls, C R. Pancoast 42
Photographic Portraiture 45
Photographing Interiors 73
Photography by Gas Light, . . . 74
Photographing Skies 109
Photographic Society of Great Britain 142
Pacific Coast Amateur Photographic Society 25, 106
Photo-Engraving, Intensifying Negatives for 33
Picture Making 38
Preliminary Hypo Bath for Negatives 48
Platinum Toning of Prints on Bromide Paper 63
Platinum Prints, instant development, ... 219
Pancoast, C. R., Bengalese Bungalow 64
Pancoast, C. R., Photographing Niagara Falls 42
Prints, Unsuspected Cause of Fading 69
Permanency of the Latent Image 70
Platinum Process, A New . . . 80
Prizes at Convention of Photographic Association of America 102
Philadelphia Card Co. 124
Printing, Rapid with Bromo-Albumenate of Silver 134
Posing, Hints on 141
Photographing Snow and Ice . . 185
Prints and their Surface Finish . 152
Portraits, Open Air 194
Piffard G., Night Photography . 198
Pictures Received 200

R

Rau W. H., Bromide Paper, Its Practical Application, etc . . 37
Rau W. H., Through Arabia Petra with Camera 94, 118, 137
Rosengarten Frank, Origin and Technology of Photographic Chemicals . 84, 92, 111, 132, 154, 174, 192
Remarks on Lieut. Brun's Paper on Exposure 117
Rapid Printing of Positive Proofs by Bromo Albuminate of Silver 134
Ryder J. F., Killed by Overdose 168
Reducer for too Great Density . 182
Reduction before Intensification . 196

S

Smith Xanthus, Poetry in Landscape 1
Smith Xanthus, Hints on Composition 76
Silver-printing on Albumen Paper 4
Society of Amateur Photographers of New York 16, 23
Society, Philadelphia Photographic, Meetings of . . . 7, 22, 40
Studies 60
Something About the Treatment of Chloride of Silver Gelatine Plates for Lantern Slides . . 63
Surprise Pictures 69
Smith X., Composition and Selecion of Subject 76
Some Photographic Heresies . . 98
Skies, Photographic 109
Stolze F., Testing Emulsion . . 135
Sherwood, Hints on Posing . . . 141
Search for Substitute for Hypo 159, 171
Sensitometer Numbers 179
Snow and Ice, Photographing of 185
Simple Method for Instantaneous Photography by Night . . 198

T

Taylor, J. Trail, on Distortion by Lenses 10
Treatment of the Negative before Printing 20
The Practical Application of Bromide Paper 37

Taylor J. T., Enlarging for Amateurs 50
The Theory of Development . . 83
Truscott, Some Photographic Heresies 98
To the Photographic Fraternity . 101
Testing Emulsions for Acidity and Alkalinity 135
Translations from Foreign Contemporary Press 134
The Lens Not Always to Blame . 196
The Shortcomings of Photography 207

U

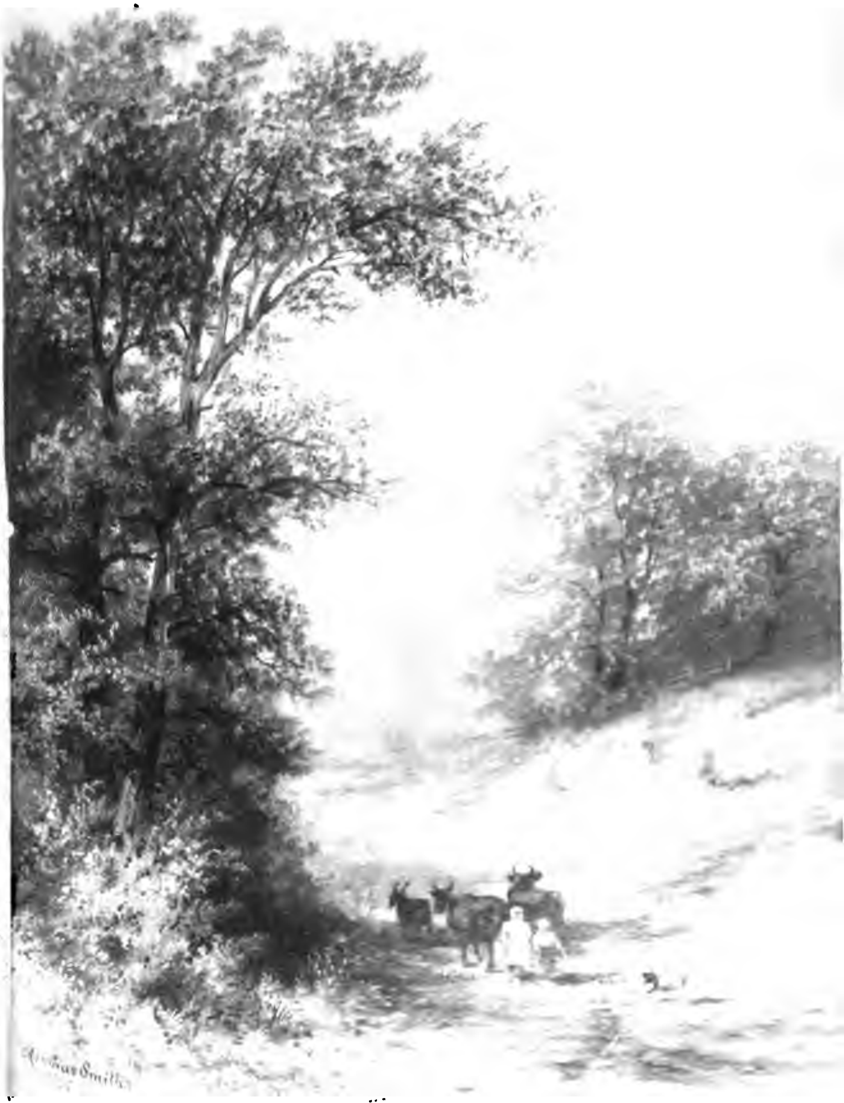
Unsuspected Cause of Fading of Prints 69

V

Villecholle on Development with Hypo-sulphite 13
Values, About 21
Vogel, The New Eosin Silver Plates 32
Vogel H. Artificial Lighting in Photographing 44
Vidal Leon, Turning Bromide Prints 63
Variety of Tones in Bromide Paper 80
Von Solen, Developing with Hydrochinon 172
Vagaries of Development 189

W

What is a Genré Picture 4
Wallace E. on Silver Printing on Albumen Paper 4
Wallace Ellerslie, on treatment of Negatives before Printing . 20
Wallace E. Gallic Acid and Silver Intensifier 91
Wallace E. Photographic Skies . 109
Wallace E. Mounts for Prints . . 130
Wallace E. Don't ask Questions 156
Wallace E. On. Photographing Snow and Ice 185
Wellington J. B. Orthochromatic Photography 31
Woodbury W. S. Preliminary Bath of Hypo for Negatives 48
Williams Jesse, Theory of Development 83
Walker D. H. on Brun's Paper on Exposure 117
" " Prints and their Surface Finish 152
Wales, Colors on Bromide Paper 170



"And where, upon the meadow's breast,
The shadow of the thicket lies."
BRYANT.

FROM A PAINTING BY XANTHUS SMITH, PHILA. NEGATIVES ON WOODBURY PLATES.

PRINTED ON MORGAN'S BRILLIANT ALBUMEN PAPER.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, JANUARY, 1887. NO. 1.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
—PUBLISHED MONTHLY.—
$1.00 per Annum, in Advance.

Poetry in Landscape.

BY XANTHUS SMITH.

In this eminently practical, scientific age of ours, when all things are being scrutinized with the most searching attention, it is becoming difficult to find persons who can sufficiently separate, or make the proper distinction, between truly artistic work and mere topographical viewing in the practice of landscape photography. Art is to a great extent imaginative and creative, and so dependent on certain poetic sentiments and acquired tastes and associations of ideas, that, unless there is a natural or inborn faculty for it, and a considerable amount of training in the proper direction, all those rare combinations and harmonies which go to make up its charms, will be overlooked, and work containing many of its best qualities cast aside as worthless, to give place to productions which, while they are perfect in all the technical excellencies of the craft, as pictures are no better than would be the work of any untutored child.

Mystery is an important element in art, partly on account of its giving some room for the play of the fancy or imagination, and partly on account of the repose given to the eye in certain passages lacking in detail, and contrasting other passages filled with minute renderings of imagery. In any landscape scene, if we view it on a clear unatmospheric day, and look in the direction that the sun is shining, so that the whole will be brilliantly and, equally illuminated, we have a condition which will give the ordinary observer the most satisfactory impression of the view, because he looks at it not as a picture, but as composed of various objects, all of which he sees separately, distinctly, and satisfactorily, because equally presented to the eye, and considered for their separate qualities and practical uses. Whereas, the artist or poet, looking only for a picture, would require to have some passages partially obscured by mist or haziness, and others cast into that deep breadth of shadow which we get in looking at right angles to the sun's lighting, or in early morning or at evening, when the nearness of the sun to the horizon gives those quiet masses and elongated shadows which make such lovely passages of repose, contrasting the finished detail of the parts receiving the full blaze of light. Suppose one were describing a nice piece of meadow land, well set with good grass for pasturage, and running along one side of it, a row of thrifty trees forming good shade for cattle, and a brook at the foot for watering, it would be all very well, but no picture; but when we read Bryant's couplet,

> "And where, upon the meadow's breast,
> The shadow of the thicket lies,"

to a person of poetic fancy, there is called up at once a host of picturesque imagery of foliage, vines, briers, sloping meadow, buttercups, and rills—a scene where the painter or the poet would be at home with nature in her loveliest abandon. Here we have a mass of quiet foliage, graceful in its contours and crisply illumined by glancing sunlight, casting its deep shadows as a background to the tangle of brier, and aster or golden-rod, standing out in all the brilliance of foreground relief; and while the painter would be planning his picture and storing his mind with imagery, or the photographer of artistic inclinations hurrying to focus his camera, the farmer, or every-day observer would be thinking only of the work to be done with axe, brier-hook, and scythe, to give a more genteel and thrifty appearance to this scene of wild neglect. A painter was wont to admire a fine mass of rock, with its weathered and lichened surface, overhung by vines, and surrounded by large and graceful ferns, which was on a neighbors place. The neighbor, learning of the interest which the painter and a few kindred spirits took in his rock, became proud of it, and in order, as he thought, to rightly bring out its beauties, and in every way show it to the best advantage, not only had all the vegetation completely cleared from about it, but had the rock itself white washed.

It is very true that the circumstance of certain combinations and effects in nature and in works of art pleasing particularly, is solely the result of training in a particular direction, the eye perceiving in them what it has been trained to perceive or look upon as excellent; and in our present rage for realistic work, we must not be carried entirely out of the world of fancy, and be forgetting what a wide difference there is between a mere view and a picture. And the best way to attain this higher training, is by careful study of the works of the most eminent painters of the past, whose pictures have sufficiently long held a high place in the estimation of persons of culture to put them above a vast deal that is constantly sought after by the untutored who are governed by the mere fashion of the time. By observing carefully, and analyzing the qualities that make these standard works excellent, and by going to nature and searching out her beauties, and applying what we have learned, may we hope to elevate ourselves to the rank of true artists in work and in feeling.

◆

A MEMBER of the Photographer's Association of America, has had his sense of justice shocked by the acknowledgment made by one of the judges at the last St. Louis Convention—that cognizance had been taken of the manner in which the exhibits were mounted and framed, and that the decision was undoubtedly influenced thereby.

A contemporary into whose columns he pours his complaint, justifies his indignation, remarking that "such an acknowledgment shows that the juror was totally unfitted for the functions he assumed, inasmuch as he was appointed to adjudicate on the merits of photographs only, and not in connection with accessories."

A judge's lot is not a happy one, anyhow. The dissatisfied will always have us distinctly know they, of course, did not expect a medal; yet always declare their judgement superior to the decision rendered. The medals always go to the wrong persons.

A man in the private walks of life may be highly respected for his skill, good judgment, and honesty of purpose; but let him be so unfortunate as to allow himself to serve as a judge, and at once, not only is his ability called in question, but even his probity is doubted.

Some one has suggested as a preventive of this inevitable dissatisfaction, to make the judges justify their decisions by a report embodying their reasons.

But judges are not of necessity more analytical or logical than other men.

How many who are possessed of good taste can give a reason why certain things please them, and yet their judgment is often sound and valuable, and we are willing to rely upon their decisions.

And so the whole thing comes to a question of individual taste, or rather an an agreement of taste of several individuals, and if, we have faith in their honesty, why not abide by their decisions.

But let us try to justify the acknowledgment that something besides the photograph *per se* influenced the judgment in the special case alluded to.

We think the acknowledgment was made in all candor. Undoubtedly, the finish of a photograph has great value in enhancing the good qualities it may inherently possess.

The manner in which it is mounted and

framed, actually gives it qualities which it did not possess unmounted and unframed.

A photograph deserving of an award must possess art qualities, but it must have something else too.

The effect of the finest artistic work is greatly weakened and may even be neutralized, by incongruous mounting.

The appropriateness of the mount is not generally taken into consideration.

Unfortunately, the percentage of photographers who understand how to gracefully pose, and properly light a subject, is not great, and it should be to their interest to study the value of accessories in setting forth to the best advantage the modicum of merit their productions may have.

When one visits an exhibition of photographic work, he is impressed with the idea that "motley is the only wear." There seems to be no disputing taste in the selection of mounts. All sorts and shades, and kinds and colors, are not only in dangerous proximity, but even mingle in the same frame, without any remorse for their violation of the first principles of harmony in color.

But we started out to justify the judge in his acknowledgment that the framing and finish of a photograph influenced his choice. Well, we have not forgotten it.

We have said that a good photograph is enriched by a proper mount, and a poor one improved thereby, and yet it is not the mount itself which really influences the judgment.

The observer is unconscious of its effect until sought for. By reason of a physiological peculiarity of the eye, we can actually change color to a considerable extent without at all meddling with it directly. All that is necessary is to alter the color which lies adjacent to it. We can satisfy ourselves of the truth of this by a very simple experiment.

If we take two little patches of red paper an inch or so in size, and place one upon a sheet of red paper, the other upon a green sheet, it will be found that the red square on the red ground does not appear nearly so brilliant or saturated in color as the one upon the green paper.

The observer who is ignorant of the facts will not believe that the two are identical in hue. These changes are due partly to the effect which contrast engenders in the eye, but partly, also, to the distraction of the judgement of the observer.

But this subject of proper mounting deserves a more generous treatment than can be afforded here.

It is touched upon merely, because we wish to justify the judge at the St. Louis Convention.

The finish had an influence on his judgment, and the confession does not compromise his fitness, but is rather *an evidence of* his critical ability. Would there were more consideration of the standards of taste on the part of exhibitors, not only in mounting their pictures, but in framing them.

The loud and disproportionate frames, and the incongruous surroundings raise the question, Why not prescribe limits to the character of the frames?

It would perhaps be impossible to have a uniformity, but we might escape the obtrusive, startling, and ugly displays, caused by the endeavor of certain exhibitors to attract attention. Let us have no more rustic work and cross-bar beams.

While talking about exhibits, we might as well object to the arbitrary scheme of classification imposed upon contributors by the photographic societies.

The multiplication of heads, no doubt, is intended to facilitate things; but it requires a photographic Hercules to properly deal with such a hydra.

May it not be well to ignore the fine distinctions, and to judge of the *merits* of photographs solely on their artistic and technical excellence.

To stimulate to good work, is the object of every exhibition; and the awards should be given for general merit and not for pre-eminence in any special class.

Very inferior work may be accorded the highest favor in a certain section, because, like the boy who was head in his class, it is the only one in it, while excellent work in a more extensively patronized department receives no notice whatever.

As long as a photograph has pictorial merit, if picturesqueness is the standard to judge by, what does it matter whether it is a portrait, a landscape, an interior or a *genre* picture.

Now this last word makes us ask the question, What is a *genre* picture? A picture of a lady sent in with no other title would be filed with the portraits, pure and simple; and a picture of a hillside and cottage, with the landscapes; but let the exhibitor merely attach a sentimental title to his contribution, and the portrait reflects the sentment, and becomes a *genre* or incident picture, and away it goes to the composition group.

Take the titles away from Rejlander's pictures, and our committees will call them portraits pure and simple.

Let the awards be for *work* pure and simple, and we think there will be a better record gained of the progress of photography, than can be had from a list of premiums for specialities.

Perhaps the London Photographic Society looks upon the subject of medals much in this light. We are told by Dr. Phipson that this body did not accord a medal to Mr. Vernon Heath, of London, because they thought it would be a kind of insult to offer an award to so distinguished a phographer.

◆

Silver Printing on Albumenized Paper.

Read before the Photographic Society of Philadelphia by Ellerslie Wa lace.

I believe myself justified in making the assertion that photographic printing has not essentially changed during the last twenty years. If this be true, it might seem to be an easy matter to deduce such principles from the practice of the best operators as would lead to the the laying down of fixed rules from which no departure could be made, save at the almost certain penalty of failure in one or another of its forms.

Practical experience in photographic printing, however, as well as a knowledge of the practice of others, would rather teach us that success in this direction is hardly to be obtained by reducing or attempting to reduce the matter to scientific principles, but that empiricsm (if I may use the word) is both easier and safer. I doubt whether there is a single operation in the whole routine of silver printing that has not been fought over by the advocates of different manners of working; the result being finally left undecided.

Remembering that prints are really a secondary product of photographic manipulation, I think that the reason of this clashing of opinion, to which I have just alluded may be found in the character of the negatives used, in the paper, and in the whole practical routine or handling. As full consideration of these three factors would be impracticable here, let me generalized my remarks, rather than attempt to give rules for working.

As far as we can gather from our knowledge of early practice in Silver Printing, it seems pretty clear that the fine effect in the print was formerly sought for by using a strongly salted paper, floated on a correspondingly strong silver bath, and used without fuming with ammonia. The negatives were also probably much more intense, or had greater contrast between light and shade. The paper itself was thicker. Inasmuch as it was an expensive matter to work silver baths of from 80-100 grains per ounce, the quantity of soluble chloride in the paper was reduced together with the strength of the silver bath. It had been definitely ascertained that over and above the quantity of nitrate of silver necessary to convert the chloride, a certain excess of silver was indispensably necessary.

As is so often to be remarked when changes take place in scientific practice at large, the pendulum swung so far in the other direction that baths of even 20-30 grains per ounce were advised, as well as the addition of other soluble nitrates which were claimed to supply, in part at least, the place of the silver salt. Such ideas are now forgotten, as they well deserve to be. The strength of the bath for ordinary work might be taken at say 50 grains per ounce, reducing to 40 in hot weather, and perhaps increasiug to 70 in cold weather or weak light. I must again beg you to remember that I am here making no attempt at a regular formula.

The failures arising from disproportionate strength of bath to paper, would be more noticeable in the case of an unduly weak solution. The paper would print slowly, and lose much of its strength and brilliancy in toning and fixing, while the only troubles to be anticipated from too strong a bath, would be an increased tendency to discolor (particularly in warm weather), and perhaps to the formation of what are technically known as "tear-drops."

The characteristics of a perfect negative for printing would be difficult to define closely, even if we had the negatives before us, and of course still more so in words. Laying aside all technical imperfections, we can say that the perfect negative is the one that will give a complete scale of tone (or light and shade) in the print, varying from black to white.

Where prints of the finest quality are desired, it is of every importance that they be printed in a light whose actinic power will suit the negative and the paper.

The well-known rule of printing strong negatives in a strong light and weak negatives in a weak one, should always be borne in mind. I have found it better to subdue the great strength of the sun's light by pasting layers of white tissue paper over the printing frame, in the case of weak negatives, rather than to leave the frame open and print in diffused light. By following this plan, I have often obtained vigorous prints from negatives thin enough to give very effective solar enlargements on albumenized paper. Of course, this is a tedious operation; and I do not by any means advise that negatives should be made so thin as to require this treatment. But, as any landscape-photographer who has had experience with the inconstancy of dame nature and chemicals will know, the negative does not always turn out just as we might wish. I have also been led to believe that the strength of the light in which the print is made has an influence upon the tone of the print; and let me here remind you of the great law in photography, that a weak light acting for a lengthened time upon photographic tissues, gives very different results from a sirong one acting for a short time.

The strength of the silver bath, I have already spoken of, but let me refer to it again merely to say that I believe fully in the principle of using weak baths for weak negatives and strong baths for strong ones.

All that can be said about fuming can be summed up when we say that the paper should be *absolutely dry* (heat being used if required) before being subjected to the ammonia, and that the latter should always be as strong as possible. Ten minutes in strong ammonia ought to be enough.

It would perhaps be difficult to answer the question why so much stress has always been laid upon the formula by which the toning bath is made, and it is easy to see how a beginner, taking up the literature of the subject, is involved in great perplexity among the numerous recipes given. The amount of free silver left in the print after the preliminary wash, will have a direct influence upon the whole process of toning. The theory was laid down by Hardwich, that no print containing free silver could be successfully toned in alkaline chloride of gold, but it is doubtful whether this is strictly true. When we consider that nitrate of silver has not only a peculiar affinity for gelatine and albumen and is removed with difficulty from either of these organic substances, it is questionable whether prints supposed to be washed free from silver are so in reality. To get rid of the last traces, we should probably have to soak the print for a long time in a solution of some chloride or other haloid, and it would then be found that the pale brick red color so obtained would not tone up to the brilliant, vigorous black or purple. The treatment by the lime bath would seem to help us in sustaining this theory, for excellent results are to be had by simply immersing the print in the toning solution without any preliminary washing whatever. The free chlorine in the lime bath immediately acts on the free silver to a greater or less extent, after which the toning proceeds uniformly even, in spite of the heavy deposit of chloride of silver that forms on the face of the print. To the question, "How much shall the print be washed?" I do not believe that a postive answer can be given. Presupposing good water supply, and ample room in the tanks (a most important thing), it might be said that from ten or fifteen to twenty-five minutes would be about right; the print, of course, not being allowed to stick together in masses. I have seen excellent results obtained by merely soaking the prints a few moments in water which was changed once, and followed by a wash of one ounce of No. 8 acetic acid to every gallon of water; after they had slightly reddened the acid was poured off, and the dish filled up again with plain water. The toning bath was gold with acetate of soda kept for about twenty-four hours before using.

In the ordinary alkaline toning bath, the presence of too much free silver in the prints will manifest itself by unequal action on the print, mealiness, and diagonal red lines. It is a safeguard to have a saturated solution of common salt close at hand, so that a little may be added to the bath if the washing has been insufficient. In such cases, the bath will generally be cloudy from chloride of silver after the prints have been toned. An important practical point is that there should be *white* light enough to enable the change of color to be distinctly seen. Subdued daylight is best, but gas at night may also be used. I have always judged of the tone by reflected light, *i.e.* by the face of the print; not by looking through the print, as some very successful operators are in the habit of doing. The prints must be well rinsed after toning, and of course it is necessary not to expose them to light more than is absolutely required.

I was much surprised a short time since to learn that it was a common practice not to throw away the hypo fixing bath, but to keep it over from day to day. I mention this only to condemn it; for, although fine results may be made, the tones are probably due to a sulphuretting action fatal to the permanence of the print, as well as the risk of imperfect fixation, owing to the bath becoming weaker by use, and losing its solvent properties. I would urge not only that the solution be strong, but that a liberal quantity be made up fresh for each days use, and that the prints be kept constantly moving, so as to ensure thorough action. If economy must be rigidly observed, it would be better to let the bath after use simply stand in the dish until strengthened enough by evaporation to fix negatives. Commercial hyposulphite of soda, I have never seen show an acid reaction.

The same general ideas as regards washing of prints before toning, might hold good in the washing after fixation. That is to say, I believe that too much stress has been laid upon prolonged washing. Rapid change of water, and constant moving of the prints, with every now and then draining off the water completely, ought to finish the process in from two to five hours, according to circumstances. The best safeguards against blisters, are to see that the paper is not too very dry before silvering, and to pass the prints from the hypo into a strong solution of common salt. The dish containing them may be set under the tap, and the solution slowly diluted by allowing a small stream to flow in, the washing being afterwards carried out as usual.

Let me now roughly outline a routine of printing which I have myself followed successfully. The room used for the purpose should have a southern exposure. The paper, of course, may be floated any where, and the silver bath may be 50 grains to the ounce. My favorite formula contains half an ounce of aqua ammonia to every quart of solution, the brown oxide of silver being taken up again with a few drops of strong solution of nitrate of ammonia. This leaves the bath strongly alkaline, and enough nitric acid should then be added to nearly, but not quite, neutralize it. If a few drops of saturated solution of alum and about 10 per cent. of alcohol be added, they will increase the coagulating power of the bath. The paper may be floated the night before in cool weather; and if anything occurs to prevent it from being used on the following day, it should be laid under pressure between sheets of white blotting paper, previously soaked in a saturated solution of bicarbonate of soda and dried. The paper thus protected will keep good for many days, and, I believe, would give results superior to the ready sensitized paper now so much in vogue. Fuming should not be done until just before printing. The negatives may be sorted over, placing the strong ones and the weak ones together, and having tissue paper, cut to the proper size, ready to paste on the frames, as before alluded to. The various dodges for double printing need not detain us here; but if it be attempted, skill and care will be required. A sufficient quantity of chloride of gold solution, one grain to the drachm of water (stock solution), is measured out, allowing say one grain to the sheet. This is carefully neutralized, either with bicarbonate of soda or borax, and allowed to stand while the prints are passed through several changes of water. I have generally used the toning bath at the strength of 1 grain to 5 ounces of water, taking care to have the solution lukewarm in winter weather. The bath when ready should be nearly free from the yellow color of the gold. If the prints tone unevenly, add a pinch of common salt to every 10 ounces of bath. The fixing bath may contain an ounce of hypo to 6 of water in summer, or 4 in winter, and should be made up with *warm water*, to compensate for the refrigeration caused by the dissolving of the hypo. The prints may be left in from 10 to 15 minutes.

I would again insist upon having the dishes and washing tanks large enough to accommodate the prints with ease. The paper should be silvered in whole sheets, and very effective dishes for the purpose may be made of wood, protected by parafine, a hot iron being used to melt it and drive it well into the pores of the wood. Washing tanks might be made in the same way, but porcelain only should be used for toning and fixing. If the water be full of finely divided mud, it will be necessary to drain the prints well after removal from the wash-water, and dabble them about in a gallon or two of well-filtered water, such, in fact, as is used at table.

The Photographic Society of Philadelphia.

The annual meeting of the Society was held Wednesday evening, January 5th, 1887, with the President, Mr. Frederic Graff, in the chair.

The Secretary announced that arrangements had been made for holding the first joint Exhibition of the New York, Boston and Philadelphia Societies in New York, at Ortgie s Gallery, on Broadway near Fourteenth Street, beginning March 26th, and continuing one week.

The members were asked to bear in mind that, though not held in Philadelphia, the exhibition, so far as they were concerned, was practically the annual exhibition of the Society. Liberal contributions of pictures would naturally be expected from Philadelphia, and preparations should begin at once for sending a large collection of choice work.

Copies of the American Annual of Photography for 1887 were presented by the Scovill Manufacturing Co., Messrs. W. H. Walmsley & Co., and Wilson, Hood & Co., and votes of thanks were passed for the donations.

Resignations were received and accepted from Charles A. Brinley, W. L. Shoemaker and Edward Browning.

The Treasurer presented his annual report, showing a satisfactory financial condition.

The Chairman of the Executive Committee not being present, the reading of his report was deferred until the February meeting.

The Committee on Membership reported the election as active members of Messrs. Howard Cramp, Charles T. Thompson, Victor C. Driesbach, W. S. Roney and Louis Husson.

The Committee on Lantern Exhibition reported that arrangements had been made for holding an exhibition of lantern slides, from negatives made by members, at Association Hall on the evening of January 12th.

The election of OFFICERS AND COMMITTEES FOR 1887 resulted as follows :

President, Frederic Graff.

Vice-Presidents, John G. Bullock and Joseph H. Burroughs.

Secretary, Robert S. Redfield.

Treasurer, S. Fisher Corlies.

Executive Committee, Galloway C. Morris, Joseph H. Burroughs, and John G. Bullock.

Excursion Committee, Charles Barrington, Samuel Sartain, and Frank Bement.

Committee on Membership, Henry T. Coates, Edward W. Keene, W. A. Dripps, William L. Springs, John Bartlett, Joseph H. Burroughs, David Pepper, and Dr. H. M. Howe.

Committee on Revision of Minutes and Articles for Publication, John C. Browne, John G. Bullock, and Robert S. Redfield.

On the announcement of his re-election as President, Mr. Graff addressed the members present as follows:

"I feel at a loss how to express my thanks to the members of the society for the honor accorded me by my re-election as your presiding officer, I can only say that the compliment is in the highest degree gratifying.

It is pleasing to record a steady increase of membership to our society, with renewed interest by all in the objects of its organization. The only sad event of the year we have to record is the loss by death of our much esteemed member and ex-president Mr. Joseph W. Bates, whose valuable services in the interest of our society are fully recognized and will long be felt.

The monthly loan exhibitions made in this room by our members is a good work, which I hope will be continued; it is also hoped that the number of papers read will be increased, so that no meeting, if possible, will be allowed to pass without the production of a written communication.

The proposition made by our society of exhibiting jointly with those of New York and Boston, or rather rotating the place of exhibition triennially, has met with the co-operation of those cities; the first exhibition under the new arrangement will be made in New York, and it is hoped that our members will strive to contribute largely towards it.

We can safely predict for the lantern exhibition on the evening of January 12th, as good, if not better, success than any heretofore held.

Although no very startling discoveries have been published in the photographic world during the past year, the improvements in all branches of the work have been steady and important. The use of paper negatives and films is a new departure, and with the ingenious apparatus for their ready employment, is very attractive to the amateurs, who as a rule prefer light weight.

The success of our fellow member, Mr. Rau, with films and paper negatives, in adding to the number of his slides and pictures during his recent trip to Europe was very marked, and must have been gratifying, as well to himself as to the producers of the materials and appliances, which enables such work to be so well accomplished.

The prints which may be made upon bromide paper, by artificial light, supply a want, and is a great boon to most amateurs.

A number of new lenses have appeared during the year, the efforts of the makers being to produce such as will carry large openings, with sharpness and depth of focus, that we may be enabled to better gratify the strong desire now prevalent for accomplishing instantaneous exposures.

With the same object, the use of the so-called detective camera has been greater than ever before, and with better results, the manufacturers of dry plates have kept pace with improved lenses, and new rapid shutters, until it has become impossible to decide in what infintesimal fraction of a second, a picture may be obtained.

The use of photographic processes for book and other illustrations, is growing with very great rapidity, and so general, that even our daily newspapers produce over night in a few hours, we may almost say minutes, some sort of outline that often serves at least, to make clearer the articles written, descriptive of an accident or event.

Relief blocks, capable of being set up with letter-press, are now a necessity; for this application of photographic methods, we can turn with great pleasure to the investigations and results brought to such perfection by our fellow member Mr. Ives, and to him also is much credit due for the advance made in the practical application of orthochromatic photography, and his liberality in making these public.

In the mechanical methods of permanent printing, we can turn with pride to the beautiful work produced daily, and so rapidly, by one of our earliest members, Mr. Gutekunst, in the production of phototype pictures. The microscopic photographs produced by our fellow member Mr. Walmsley, are wonderfully perfect in their way.

In the manufacture of dry plates, our widely known member Mr. Carbutt must be mentioned as one of the first in the country to produce, commercially, the means of enjoying our art to the fullest, and who vigorously keeps pace with all advances made in that industry.

I do not wish it thought that I desire to ignore other of our members, who have done good work, but think we should all feel proud of those who have produced results so creditable to them, and of such advantage to the public at large.

The applications of our favorite pursuit are so numerous, that it would take too much time, and be of little profit, even to refer to a tithe of them, extending as they do to botany, meteorology, biology, geology, zöölogy; in fact, to the whole catalogue of "ologies."

Its adaptation to the use of astronomy will be enriched in the near future, by the use of the most stupendous camera ever conceived. Namely, one having an object glass thirty-six inches diameter, and a focus of more than fifty feet; I refer to the instrument at the Lick observatory, California, where a duplicate lens for the great telescope is about to be adapted to photographic puposes; the enormous size and perfection of the instrument, and the phenominal clearness of the atmosphere at the locality of the observatory, must produce results not heretofore reached.

The statistics of the number of dry plates produced by the many manufacturers thereof, would be very interesting, and instructive, in fact many of the works have been driven to their full capacity, and have been obliged to greatly enlarge their factories. A fair proportion of those made have been exposed by amateurs, of which our society has, I feel, done its full share, and to judge by the work which from time to time reaches this room, with most excellent results.

The number of societies in the United States, with the same objects as our own, is now reported to be over thirty, and largely composed of enthusiastic amateurs.

A school of photography has been started at Chatauqua, under the care of one of the oldest practical operators in the country, Dr. Ehrmann; this is a move in a good direction, and will lead to the improvement of those who are enjoying, or desire to enjoy the pleasures and advantages of the use of the camera.

Hoping another year will pass as successfully, as the last, and find us at its end able to record increased numbers, and continued prosperity. I heartly thank you, gentlemen, for the honor conferred this evening."

The proposal of Mr. John Sartain, that members should take part in the American Exhibition in London, action in report to which was deferred at the last meeting, was taken up, and, on motion of Mr. Browne, the Chair appointed Messrs. Samuel Sartain, Rau, and Coates, a committee to take such measures as may be necessary in regard to the sending of exhibits by members of the society.

The paper for the evening was read by Dr. Ellerslie Wallace, Jr., on "Silver Printing on Albumenized Paper."

During the discussion which followed, the Secretary stated that he had used Labarraque's solution for eliminating hypo from prints for the last two years. Pictures which had been exposed in frames during that time showing no perceptible change, and the whole washing process being completed in from half an hour to an hour.

Dr. Wallace considered the action of the chlorine on the prints to be injurious, and preferred, where it was necessary, to economize time in washing, to run the prints repeatedly through a clothes-wringer into fresh changes of water. There was some danger of tearing the prints by this process, but the elimination of the hypo was very thorough.

Mr. Browne urged the members to experiment in silver printing on plain paper, calling attention to an article on the subject in a recent number of the "Photographic Beacon." Salted paper could now be purchased ready for sensitizing. The mat surface of the plain paper gave very artistic results, and the image seemed to be entirely permanent.

Mr. Fassett had specimens of plain paper prints made in 1856 or 1857, toned and fixed in one bath, which showed no signs of change.

Two questions in the box asked:

1st. Does a portrait lens contribute to roundness of image in portraiture?

As bearing on this subject, the Secretary read an extract from an article on "Photographic Optics," by Ernest Gundlach, in the AMERICAN ANNUAL OF PHOTOGRAPHY, which argued that a portrait or other lens used with a large opening tended to give an appearance of relief in the image, as well as of brightness, nature, and life.

2d. The cause of halation in glass negatives is generally explained as being the result of the light passing through the lens, and then through the film, striking upon the back of the glass, then being reflected at a different angle upon the reverse side of the film. Photographic books state that this can be obviated by coating the back of the negative in any opaque color. If this be so, why does not the septum, which is invariably black, and held closely to the plate, answer the same purpose? Will the members of this society please state if, in their experience with paper negatives, they have found absolutely no halation?

Mr. Samuel Sartain stated that the opaque backing must be in optical contact, to prevent reflection, and this was not the case with the septum in its relation to the plate.

Mr. Rau had found, in most cases, an absence of halation with paper negatives, but they were not entirely free from it.

Mr. Vaux thought, that where it occurred with paper-supported films, it was caused by the diffraction of the rays of light, which, with some subjects, could not be avoided.

Mr. Bartlett stated, that in making enlargements, a certain amount of halation frequently occurred, which he accounted for by the fact that the difference between the visual and chemical focus of the lens was more apparent in the production of the enlarged image.

Mr. Vaux showed a number of negatives from plates of three different makes, showing dappled markings, like irregular "honey combing," which appeared after fixing, and the cause of which had puzzled him. It was thought that, though there might be certain conditions in the emulsion rendering the plate liable to this trouble, it was probably due to not keeping the developing or fixing dishes in motion.

Mr. Fassitt related some of his photographic experiences during his recent trip in Europe, mentioning particularly his interesting visit to the Exhibition of the Photographic Society of Great Britain, his extremely courteous reception there, and the evident appreciation shown of the efforts made by some of the members to add to the interest of the exhibition by sending specimens of their work.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

Distortion—Mainly by Lenses.

[A Communication to the Camera Club.]

This title, you will perceive, affords me a certain degree of latitude, and permits me to radiate out a little should I so desire it.

Can Photography Lie? was the title of a paper recently read at one of our Metropolitan Societies, and from the discussion that followed, it was made abundantly plain, that whether photography can lie or not, there was no room for doubting that *photographers*, as such, could and did.

I do not think it necessary here, then, to do more than barely allude to what, by elasticity of diction, may be termed the ethics of photography. Our art science, so potent for recording truth, may, in the hands of some, be made the instrument for perpetuating falsehood, and thus employed is the plastic tool of the unscrupulous. But this belongs to the department of moral photographic distortion, whereas I desire to confine myself here to physical ethics, in particular the influence of the lens in causing distortion. Perhaps it may be better at this stage to make an attempt to define distortion. Broadly speaking, it is inaccuracy in rendering, on a flat surface, a drawing or projection of any scene; but this being somewhat broad, I narrow it down for my special purpose, by saying it is the inability of a *lens* to project with truthfulness any scene in front of it ; and if a photographic drawing does not satisfy the conditions imposed by the recognized principles of perspective, it is said to be distorted. Such distortion has its visible development in curving all straight lines, which do not pass through the centre of the picture, and in exaggerating the dimensions of certain objects in the picture, in respect to others, in a way which is opposed to the principles of true perspective. This kind of distortion is a concomitant of the employment of single lenses, whether achromatized or not.

If the camera fitted with such a lens is directed to a row of pillars, squares, or any other class of objects identical in dimensions, those projected at or near to the centre of the ground-glass will be on a larger scale horizontally than those at the margin, more especially if a wide angle of the view be included. The difference between those near the centre of the plate will be so slight as to be inappreciable ; hence, if only a narrow angle be included when employing such a lens, there is no practical distortion apparent. The distortion is there, but it is so small in amount as not to arrest the attention. In a landscape it is not perceived at all, even though a wide angle of subject be embraced in the picture.

It is in architecture or the coping of a plan or map, where it becomes apparent. No matter how perfect a landscape lens may be, how superb its definition, or penetrative its range, though it may produce the finest line of the finest engraving with all the crispness of the original, and delineate the very structure of the stones of which an edifice is formed, yet will it not be either a copying or an architectural lens.

The cause of this next demands consideration. In every lens there is a point known as its optical centre, the situation of which is determined by its form. Incidently I remark that it is from this point that the focus has to be measured, although this is outside of the subject for immediate consideration. In some lenses it is in the body of the glass, in others on the surface, and in still others outside of the lens altogether. It is a property of this point that every ray which passes through it emerges from the lens in a direction parallel to that at which it entered. Now it so happens that this is one of the conditions for giving freedom from distortion; all the the rays must emerge from a lens, or combination of lenses, in a direction parallel to that at which they enter. That is the law which governs freedom from distortion.

I here illustrate how impossible it is for the landscape lenses in common use to conform to the requirements of this law. [The speaker here drew certain diagrams on the blackboard.]

Before we pass on to the cure of distortion, let me observe that the more closely the rays are made to pass to the optical centre, the less will be the distortion produced by the lens. The best condition for flatness of field, and a well defined margin, is when the diaphragm is at such a distance from the lens that the extreme margin of the picture is formed by the extreme margin of the lens. But this, unfortunately, is conducive to distortion in its greatest possible development. As you move the diaphragm closer up to the lens, so does the distortion decrease until, by absolute proximity to the lens, the distortion is reduced to the minimum. But as the marginal definition suffers by such approximation of the stop to the lens, it is necessary that the aperture in the stop be seriously reduced when employed under such circumstances.

I like single lenses ; and in saying that there is a vigor and "go" about their productions, I only quote the opinions of two eminent London opticians, now deceased. No flare spots or fog about them, unless the diaphragm has been wrongly placed, almost intentionally so, and even then the lens may not respond.

Before leaving this part of my subject, I observe that even with a single or distorting lens, it is not only possible, but easy, to obtain rectilinear or orthographic photographs. Select two simple lenses, such as strong spectacle glasses, one a meniscus or periscopic, and the other a concave, selected of such strength that one neutralizes the other, thus forming a combination equal nearly to a piece of plain glass, and place these just in front of the diaphragm. The lens thus becomes rectilinear. Those of you who prefer the single landscape lens, and may at some time or other be confronted with an architectural subject which fills the plate, and is thus projected under distorting conditions, may become quite independent of adverse fate, by invoking the aid of this corrector, which may be carried in the pocket, ready for use when required.

When the position of a landscape lens is reversed, the stop being now next the ground-glass, then do we obtain distortion of the pincushion class. The row of pillars or cubes in this case has its central one smallest, the dimensions of the image increasing as we approach the margin of the plate. This is the nature of the distortion that was given by the so-called orthoscopic lens; and at a time (1861) when the subject of distorting-lenses was *in excelsis*, and I and others made a fad of it, I discovered that by placing a thick plate of glass in front of the sensitive plate, the distortion could be eliminated. This applies also to the employment of the meniscus lenses of the present time, when reversed in position. [I illustrate on the blackboard the influence of this plate upon the rays.]

Double lenses. In all double lenses, the stop of which is placed in the due ratio of their focal power, the conditions of freedom from distortion are obtained.

I here show the evolution of our most modern symmetrical and rectilinear lenses from the original monad. [Demonstration given.]

Is it not possible to construct a single lens, which in itself shall project a picture free from distortion? Never, so long as we adhere to the present form. But by departing from such form, and adapting something akin to that of the Coddington pocket-glass, known to you all, it may, I think, be effected. This is a single lens, possessing great thickness, the external surfaces, or ends of the glass cylinder, being ground to spherical curves. It has a contraction in the middle, through which all rays must be transmitted. Its errors of spherical aberration are minimised by its thickness, but its chromatic correction is not attempted. To adopt this system to photographic use, first of all a definite angular aperture, such as f-16, must be fixed upon; for the optical centre being *in* the body of the lens, no stops are admissible. [Demonstration.]

Either of the five forms of achromatized Coddingtons here drawn, or something like them, may supply the condition of a single achromatic lens, giving flatness of field, brilliance of illumination, sharpness, and freedom from distortion. The central or axial pencils we care nothing for: they take care of themselves; witness the telescopic object glass. It is the oblique rays that cause trouble to opticians.

Although not strictly within the scope of my subject, as I had intended it, I may here refer to the distortion which arises from imperfect using of a lens and camera.

The distortion of convergence or divergence is caused by the map, plan, picture, or building not being on the same vertical plane as the ground-glass of the camera. This occurs altogether irrespective of the nature of the lens employed, and would arise even were there no lens at all in the camera, a pinhole taking its place. When one points a rigid camera (that is one without a swing back) upwards at a building, so as to get it all in the picture, the sides of such building must converge like the limbs of a capital A; and, conversely, if directed downwards, the vericals will diverge like letter V. This is certainly distortion, but the lens must not be blamed for it.

Nor must blame be attributed to the lens by which a violent perspective is obtained. In architecture, the lines are offensively violent by a too near point of sight. In landscapes, it causes ponds in the foreground to become lakes, rivulets to become rivers, and distant mountains to become molehills, or, rather, to lose their identity and character by becoming merged into the distant landscape. This is caused by the employment of a lens of too short a focus, and embracing too great an angle on the plate. In portraits, this kind of distortion is apparent in the enlargement of the hands, knees, and feet. It is caused by selecting a point of sight too near the sitter, and is remedied by removing the camera to such a distance from the sitter, as to reduce all the parts practically to the same uniform scale of representation. In these cases the perspective is not false—it is only violent and in bad taste, and it conveys an erroneous idea. All the same, it is distortion, although an angular measurement, made from the point of sight, would demonstrate linear accuracy.

What *is* truth? It is not necessarily realism. But I must steer clear of the metaphysics of distortion, although the subject is tempting.

I do not conceive that my subject necessitates my speaking of the distortion that arises from the expansion of the printing paper more in one direction than another while wet. While distortion certainly results from this, the lens has neither part nor lot in causing it.

But, it may be said, is not the unequal lighting of the plate a species of distortion? Scarcely so. From the very nature of the diaphragm, or of a lens working at full aperture, the axial illumination is more intense than is an oblique ray, which is both less in volume and has farther to travel. With a view to obviate this axial intensity, and at the same time reduce the power of the bright light from the sky in favor of the duller illumination of the foreground, I recommend the adoption of the following system. Place in front of the diaphragm, and *at some little distance from it*, a small vertical strip of blackened metal of a V shape. If in front of the diaphragm, it must be placed with the base uppermost, the opposite condition ruling when it is otherwise placed. The two-fold effect is produced that the volume of light which reaches the sides or ends of the plate is not only equal to that by which the centre is impressed, but may be rendered greatly in excess of it; and, also, that the light from the sky may be so greatly cut down as, if desired, it shall be even subordinate to that coming from the foreground.

This is a much better system than another which I have often recommended for equalizing the sky and foreground, namely, by placing the stop in a downward sloping position.

J. Traill Taylor.

[The paper was illustrated throughout by diagrams drawn on the blackboard.]

Development with Hyposulphite in Emulsion Photography.

By M. de Villecholle, (Paris).

[Translated by Ellerslie Wallace.]

The gelatino-bromide process, although bringing about extreme simplicity in photographic operations, particularly in exposure where a degree of rapidity long unhoped for was attained, has nevertheless been found wanting in certain particulars. People are on the lookout for emulsions more and more rapid, and the plate-makers feel themselves compelled to produce plates of such extreme sensitiveness that they frequently become a nuisance even to expert operators, as well as a constant cause of failure to the beginner.

It may be said that, at the present time, there is a demand for (1) rapid plates for portraiture; for (2) extra-rapid plates for instantaneous effects; for (3) comparatively slow landscape plates and still-life, without counting emulsions on opal glass for the window, and those made to rival albumen in fineness and delicacy, as required in lantern slides for projection, etc. Such a multiplicity of formulæ may well introduce confusion into plate manufacture, where great experience and constant care are demanded. Photographers, moreover, will require a good deal of apparatus, and run the risk of disastrous confusion, when working with so many different plates, particularly in the development.

After thinking over the subject, it has seemed to us that we might easily do away with all these troubles by availing ourselves of the various methods of development, and by a skilful application of the stimuli and the restrainers of development.

Our advice would be, that a single formula for emulsion of good rapidity be chosen, such as is turned out by the best makers, and that the formula then be adhered to, no matter how slight or how great the rapidity desired.

The experiments made by myself, and repeated by numerous operators, all vouch for the excellence of the means already at our disposal, but which are not well known, owing to the multiplicity of formulæ. I have thus seriously considered how certainty might be obtained, and, aided by perfectly methodical manipulation, do away with all hesitation.

Let us say, for instance, that portraits, landscapes, or instantaneous effects are to be made with a given brand of plates ; if alkaline development be used, all will go well, if a judicious combination of the alkalies, the pyro, the sulphites, and the bromides, be made. This developer requires skill, tact, and patience, which, by no means, every operator can boast of possessing. Consequently, ferrous-oxalate is often resorted to, in the hope of getting better results.

Citric acid and the bromides are often used as restrainers for over-exposure. They are well known, and easily applied. But much has been said in favor of hyposulphite of soda as an accelerator—particularly in instantaneous work—but it is dangerous from its tendency to form a veil or fog of varying opacity. I prefer to add a little sulphite of potassa.

Recourse has also been had to mysterious liquids, more or less efficacious. I have abandoned all these empirical methods, and availed myself of both the researches of my friend M. Audra, as well as of the recent and curious experiments of M. Ferrier, which have been carried out with his well-known skill.

M. Audra has especially proved the efficacy of a solution of 1 gramme (15 grains) of hypo, and 10 grammes (154 grains) of bromide of ammonium, in 35 ounces of water. After exposure, the plates are dipped in this mixed solution, washed in running water, and immediately developed with ferrous-oxalate.

M. Ferrier used a bath of 2 per 1000 of hypo, without bromide, immersing the plates from 15–20 seconds before exposure ; they are then washed and dried spontaneously. Both of these plans are excellent. There is a great increase in sensitiveness, without any trace of fog, and the exposure is no longer than that required for alkaline development.

However, on comparing two plates made by myself, exposed under similar conditions, the one treated with hypo fifteen days before exposure, the other being treated at the moment of development, and both remaining in the developer for the same length of time, I found that the one treated by M. Audra's method had more detail and softness, whence we draw the conclusion that these plates were the more sensitive.

Nevertheless, I repeat that both processes are very good, and may be looked to as capable of rendering great service in ferrous-oxalate development.—*Bulletin de la Societe Francaise de Photographic.*

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OUR ILLUSTRATION.—In photography, color, which adds so much to the beauty of a landscape, is only a hindrance to the perception of the harmonies of light and shade. It is necessary that there be an instinctive or acquired ability to translate the multitude of hues into monochrome to gain an idea of the artistic effect of the massing of light and shade. It is not always possible for the photographer to have command of the most suitable point of view or to adapt the surroundings exactly to his conception of a beautiful picture, but the lack of the knowledge of chiaroscuro, will cause him to convert even a naturally perfect view into a mass of confusion and ugliness—

"By making worse what nature made so clear."

We are glad we can give our readers so artistic a study of landscape, with such beautiful contrasts of light and shade, and harmonies of lines and masses as in the copy of the painting by Mr. Xanthus Smith. The suggestion for this lovely picture, which reflects so perfectly the lines of Bryant, was derived from an ordinary photograph, in which the elements of the beautiful lay concealed, until called forth by the artistic perception of the painter.

The picture, so full of repose and poetic sentiment, needs not our comment, and we, with pleasure, refer our readers to the excellent paper on "Poetry and Landscape," which Mr. Smith has kindly given us as a counterpart to his lovely landscape.

The negatives are upon Woodbury Plates, and the prints upon Morgan's celebrated Albumen Paper.

BOOK NOTICES.

"Isochromatic Photography with Chlorophyl," by Frederic E. Ives. Special Edition, containing photograph of the solar spectrum, and all the latest contributions of the author to this important subject.

Whatever credit others may deserve for securing the proper translation of the colors into relative monochrome, it is now generally acknowledged that Mr. Ives' process has the right of priority for completeness. All honor to those earnest investigators who have worked, and are still working towards the solution of this problem, yet we feel proud that Mr. Ives should so early have discovered a method which has not been surpassed, if it has been equalled, even by the most recent labors in this new departure of photography.

"The American Annual of Photography" and "Photographic Times Almanac," for 1887. Published by Scovill Manufacturing Co., New York.

In the making of photographic books, truly, there is no end, and it must be confessed that their authors are frequently obliged to urge with eager compounds, our cloyed palates for their productions. So, that one generally takes up a new photographic publication with a certain amount of consideration, if not forbearance: but when upon opening a book at random, we continue to read with interest, and even take it home with us, when the time comes to close our office, it may be safely said, that book is a good one. Scovill's New Annual we find just such a book.

Photography is a growing art. It has not yet crystalized, and many earnest workers are laboring at the problems, which still require solution. Consequently there must be an accumulation of facts, many of value, but some also, of little worth; and the end, and purpose of the photographic Annuals should be to winnow the chaff, and to gather the wheat into its garners. Their value is in proportion to the faithfulness with which the harvesting is done.

The editor of the "American Annual of Photography" is possessed of good selective judgment, and the numerous papers he has collected are of real value, coming as they do, from the pens of well-known practical writers. Another characteristic we like about the Annual, is its comprehensiveness, and the broadness with which the different phases of the science or art are treated.

"Photography in the Studio and Field" is the title of a new work by Mr. E. M. Estabrook.

The constantly increasing army of amateurs has created a demand for such a book, and we are glad that so capable an author has undertaken the task. We remember his excellent treatise on Ferrotypes, published some years ago, and on receipt of the present work, anticipated as successful a result.

It is not a scientific work, but a clear and comprehensive treatise of the various photographic operations. The style is good and instructive, and is easily understood, even by a beginner; and, although it contains a good deal of matter which, of necessity, requires concise writing, everything is made clear, even in the treatment of the more difficult processes of the science. Published by E. & H. T. Anthony & Co., New York.

From the same publishers, we have received No. 21 of their Photographic Series, "On the Choice and Use of Photographic Lenses," by J. H. Dallmeyer. Sixth edition.

It is truly an enjoyment to read a book by an author so thoroughly conversant with his topic as the one before us. The subject of lenses is difficult, yet one of the most important in photography, and, therefore, demands a conscientious treatment.

A superficial knowledge may serve a writer of tact to gloss over difficult parts of some of the branches of photography, so as to deceive the beginner as to his ability; but when a subject like the present, involving so intimate an acquaintance with all its details is taken in hand, half-knowledge will not avail to hide ignorance.

The little book before us is emphatically one of the best practical treatises on lenses we are acquainted with, and we shall keep it handy for frequent reference. Our opinion is shared by many others, as we see from the title page the present issue is the sixth thousand.

Also by the kindness of E. & H. T. Anthony & Co., a neatly bound copy of the "Photographic Bulletin," for 1886.

The excellent reading matter, good type, and the beautiful illustrations, especially those by the Indotinte process, combine to make the volume a valuable addition to our photographic library.

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THE Photographic Stock Business and Publication of the AMERICAN JOURNAL OF PHOTOGRAPHY, hitherto conducted by Mr. Thomas H. McCollin, at No. 635 Arch St., Philadelphia, will hereafter be continued in connection with Mr. Alfred E. Maris, under title of Thomas H. McCollin & Co.

Mr. Maris is a gentleman of excellent business reputation, and possessed of those qualities which shall insure an increase of the pleasant relations which have always characterized business intercourse with the house.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.—A most interesting meeting of this society was held on December 14, 1886, with President Beach in the chair, and Mr. J. W. Champney acting as secretary *pro tem.* Letters were read relative to business connected with the Society, also the reports of the Committees on the Society's Portrait Album and International Lantern Slide Exchange. The Committee on Joint Exhibition likewise reported that the right of refusal for a few days of Ortgie's Gallery, on Broadway, near Fourteenth St., had been secured for the week of March 26th to April 2d, 1887. A final decision, depending upon the approval of the Board, will be reached this week. The librarian reported the receipt of a window transparency, on the new ground-glass plate, from John Carbutt; two large photographs of the interior and exterior of St. Agatha's Church, Philadelphia, from James Monaghan; and a book, entitled "Treatise on Paper," by Richard Parkinson.

Several new members were elected, and a few resignations received.

Dr. Roosevelt then read his excellent essay on "Anatomical Micro-Photography," explaining the ordinary process of staining tissues, and the difficulties attending the photography of such specimens, by reason of the inability of ordinary plates to render the proper color-tone relations. He explained a very ingenious method of overcoming the difficulty by using a contrast color to secure a monochromatic light, employing to this end a glass cell, which may be filled with any color desired to complement the one being photographed.

During the remarks, Dr. Roosevelt showed the practical operation of the apparatus, and the fine effects produced were much appreciated by the spectators.

The President introduced Prof. Spencer B. Newbury, of Cornell University, who read a paper on "Unboiled Emulsions," which gave rise to a discussion, and several important points connected with emulsions were touched upon.

The discussion on the defects in dry plates inclined to lay the blame of pinholes, etc., at the door of the makers.

Annual Exhibition of Lantern Slides by the Photographic Society of Philadelphia.

A large assembly gathered in the lecture room of Association Hall, on the evening of Wednesday January 12, to enjoy the display of work of the members of the Society.

The pictures were admirable projected upon a large screen, by Mr. Frank Bement, assisted by Mr. W. H. Rau, while the titles were read by Mr. Galloway C. Morris. One hundred and sixty-five slides were shown, contributed by 49 members, forming a varied collection of landscape portrait, and composition subjects.

In technical excellence, that is, good chemical qualities and general photographic properties, the display was probably one of the best the society has ever made. There was scarcely a slide that did not show evidence of skill and care in the manipulation of the negative; but, in point of artistic merit, the exhibition was not up to the standard, which characterizes the work of the Philadelphia Society; although there were some few examples worthy of the highest commendation for the fine art qualities they displayed.

January Bargain List.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition,	8 00
1—Papier Mache Pedestals and Bases, good order, each	3 50
1—Papier Mache Wainscoting, fair order,	3 50
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—Centennial Camera Stand, in good condition	11 00
2—Tall Head Rests, price each	2 00
1—Papier Mache Log, 2 feet long	2 00
1—8x10 Osborne Interior, "new," light left of subject	16 00
1—20 inch Eureka Burnisher, good as new	20 00
1—Pharaoh Position Chair	20 00
1—Seavey Rock, new	4 50
1—14 inch Eureka Burnisher, Entrekin	20 00

Camera Boxes.

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—4x7½ Stereo Box (wet plate) and Plate Holder, fitted with a matched pair Zantmeyer Lenses	30 00
1—6½x8½ Portrait Box and Plate Holder, fair condition	6 00
1—5x8 A O Co. first quality box, 4 double holders, carrying case tripod. 1 5x6 Dallmyer R R Lense, used very little, good as new	68 00
1—14x17 A. O. C. Camera, Double Swing, with Zentmayer Combination Lens	75 00
1—½ size Am. Op. Co. D. S. B. Portrait Camera, fitted with ½ size Ross Lense	45 00
1—5x8 Am. Op. Co. Camera	6 50

Lenses.

1—4x4 Darlot Portrait Lens, with Rack and Pinion Movement and Central Stops. Very little used.	25 00
1—5x8 Waterbury Lens	2 50
1—13x16 Harrison Globe Lens W.	20 00
1—1-4 Size Darlot Gem Lens	3 00
1—11x14 C. C. Harrison, Central Stops.	35 00
1—Seavey baby shell, with background.	5 00
1—Matched Pair Ross Symetrical Stereo Lens, 4½ in. focus. By using back combination only will cover 5 x 8 plate full; will be sold singly or in pair. Price each, $25, per pair	45 00
1—Finder	2 25
1—Prohs Shutter No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order.	15 00
1—Matched Pair imitation Dallmeyer Lenses, per pair.	12 00

PATENT FOR SALE. THE ADAMSON CO., Patent Solicitors, Muncie, Ind.

WANTED—Position in a first-class Gallery as retoucher or printer; best reference. Address L. Wendenburg, College Hill, Easton, Pa.

FOR SALE—Portable House, 14x24. Price fitted, $250; unfitted, $150. Address Thos. H. McCollin & Co., 635 Arch St., Phila.

WANTED—A Portable House or Photo. Car. Apply Thos. H. McCollin & Co., 635 Arch Street, Philadelphia.

Superior Mammoth Voitlander Tube, the property of a retired photographer, will be sold low. Apply at the Husted Studio, Ridge Ave. and Wallace St.

THE
WOODBURY
DRY PLATE

Is Easy of Development, attaining any Required Degree of Intensity without the Slightest Tendency to Fog; gives Vigorous, Brilliant Negatives, and Soft High Lights, Clear Shadows, and a Wealth of Gradations Unequaled by any other Plate.

Read the following letter from Mr. Xanthus Smith, the eminent marine painter :

MR. THOS. H. McCOLLIN,

Dear Sir:—Learning that it was the intention of the WOODBURY DRY PLATE CO. to manufacture a plate that would be of an excellent quality, and above all of a uniform standard of excellence, immediately on their coming upon the market I purchased and used them. The work which I did upon them was of so remarkable a character, that I feel it due to the maker that I should say a few words in approbation of his skill The plates are heavily coated and appear to be rich in silver, and it is a perfect delight to develop them. I do not use the formula for development given with them, but my own. I prefer pyro and ammonia as a developer for dry plates. Now the beauty of these Woodbury plates is, that they come up slowly and may be allowed to remain it seems almost an indefinite time in the developer without the slightest tendency to fog or dim in the deepest shadows, and during this time the image is growing wonderfully in refinement of tones. When you can get a negative that is sufficiently intense in a few points of high light to leave the white paper and absolutely clean in the touches of deepest shadow so as to print a clear black with every possible gradation of tone between, then you have about perfection, and I attribute it to this cleanness and slowness of developement that these plates realize, in a wonderful degree the texture of objects.

All specks from dust, spots and stains in negatives by giving a surface upon the finished print destroy the appearance of relief—to exemplify what I mean, all who enjoy looking at stereoscopic pictures. know how the effect is marred by a spot or blemish on one of the prints—and the impression on the eye is much, the same though in a less degree with ordinary prints. Should the Woodbury plate maintain its excellence, which there is every reason to hope it will, those practicing photography, will enjoy that happiness which success only can give.

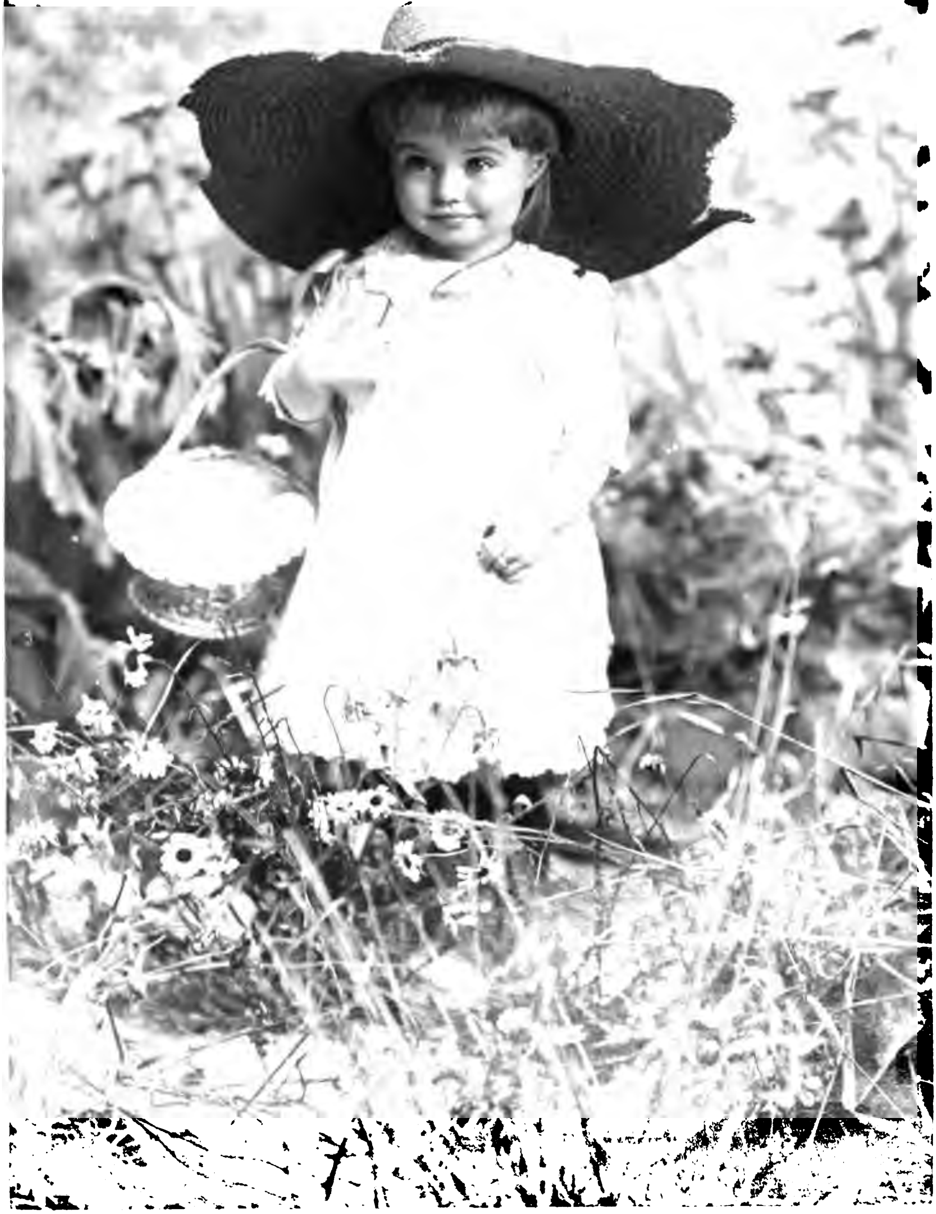
XANTHUS SMITH.

Manufactured by WILLIAM GRISCOM, Jr.

THOS. H. McCOLLIN & CO.,

TRADE AGENTS,

635 ARCH STREET, PHILADELPHIA.



Negatives by G. M Elton, Palmyra, N. Y.

MADE ON INGLIS PLATES. **PRINTED ON MORGAN'S BRILLIANT ALBUMEN PAPER.**

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, FEBRUARY, 1887. No. 2.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
—PUBLISHED MONTHLY.—
$1.00 per Annum, in Advance.

Treatment of the Negative Before Printing.

BY ELLERSLIE WALLACE.

We believe the days to be long passed by when the photographer will object to any treatment of the negative, such as may increase the good qualities of the prints it yields. Untouched prints, or negatives, either, would not command any particular attention when compared with other prints, as in an exhibition, for instance.

Retouching the negative has been so much written upon, that we may well refer those of our readers desiring information upon this point to the numerous articles that will be found in the books and journals; still, inasmuch as the retouching pencil will almost always be used in the improvement of the negative, we may briefly say that the pencils must be tolerably hard, and the necessary portions of the negative prepared by dropping on a drop of a mixture of Canada balsam and turpentine (one to two). This should be allowed to act on the varnished surface for a moment, and then rubbed off with a clean ball of cotton, pressed tightly together, until there is no stickiness to the finger. The surface will now be found excellent to work upon.

A great deal may be accomplished also by working on the back of the negative, and there are several ways of doing this. A varnish, or collodion, containing a very little yellow color (as, for instance, an alcoholic solution of turmeric), may be poured over the back of the plate, if there are large portions of the image too weak to print well; while those corresponding to the denser parts of the plate are scraped away, so that they may not print chalky-white. Our own practice, however, decidedly leads us to prefer covering the back of the negative with *tracing paper*. This may be had at the stores where artists' materials are sold, and care must be taken to pick out a good quality. It would also be worth while to inquire for "papier minéral," a French paper, much better suited to the purpose in every way, and largely used abroad. We believe that, as yet, it is not regularly imported.

The tracing paper (or "papier minéral," if obtainable) is now to be cut into pieces the size of the negative, and slightly dampened on both sides with a clean, wet sponge. A narrow edging of flour paste, say ⅛ inch wide, is to be applied to the borders of the reverse side of the negative, and the wet tracing paper carefully brought down, so as to adhere by its edges only. Care must be taken not to smear the paste either on the negative or on the paper, as this would render the latter unequally transparent; the paper, too, must be laid down evenly, and not drawn too tight, otherwise, when dry, it will be puckered. If well done, the paper, when dry, will be perfectly smooth and tight, and be in just the right condition to be worked upon with an artist's stump filled with black lead.

Let us suppose that we had a landscape negative to deal with, which presented a foreground with good, though weak, detail, distance perfect, and sky too dense. After getting the paper on, we would fill the small end of the stump by rolling it in the dust, or powder, obtained by scratching down a soft black crayon with a knife. We should now apply the stump, with its heavy charge of black, to the *sky first*, so as to render the latter entirely non-actinic, and prepare for the subsequent double printing in of clouds. As the tracing paper receives the lead best at the *first touch*, we should follow the distance with great care, and renew the crayon-powder, or lead, whenever the stump refused to give a good black mark. The rest of the sky could then be filled in without any great caution, save that of making it perfectly dense. The stump, which we will suppose exhausted, or very nearly so, might now be very lightly applied to the paper over the weak, thin parts of the foreground, and the work equalized, either with a ball of cotton, or the tip of the finger. It must be remembered, that over thin parts of the negative, such as half tones and the more transparent parts in general, the stump-work has great restraining power, and will appear prominently in the print, unless properly managed. Beginners would do well to have a piece of sensitized paper ready to try the effect upon before setting the negative aside as finished. Where the contrasts in the view are very great, it has been suggested that the tracing paper be cut out over the dense portions of the negative, so that there may be no obstruction whatever to the light. It will be found in practice, however, that, unless the work is of a rather bold or coarse character, this is very difficult to do without leaving a mark upon the print. In such a case, we would prefer to use the yellow varnish, and scrape away, as before alluded to.

The skies of landscape negatives, or perhaps sometimes a large reach of water may be a little too thin to print well, or contain one or more *spots*, spoiling the effect. The tracing paper will be very useful here; if the spot is in the sky, a few touches of the stump, not too heavily charged, may be made to convert it into a cloud, or at least something that will pass for such among non-critical people. Here and there we would wink at such dodges; but if there is much of this kind of work to be done, it will be far easier and better to use the natural sky from a cloud negative. All negatives that have received this tracing paper backing, must be printed in "broken sunlight," *e.g.*, under ground glass or tissue paper. This is of every importance, for if the full sunlight strike the tracing paper backing, the texture will appear on the print, giving a most unpleasant granular effect. The subduing of the light here will make very brilliant and pleasing prints from thin negatives.

For negatives that show much solarization, we would advise simply printing by the aid of a burning glass, taking care not to let its action become too violent. Some have spoken of rubbing the solarized portion with a rag wet with alcohol; others, again, of rubbing down with emery, fine pumice, etc. Such negatives, however, are always difficult to deal with.

It will sometimes happen that some undesirable object can be removed from the film by simply scratching it away with an etcher's tool, or a needle set in a suitable handle, say like that of a paint brush. All this work must be done with judgment and care; nevertheless, we are sure that those who have never attempted it, will be delighted with the results certainly obtainable. This whole subject has been very properly called the "Artistic Improvement of Negatives."

Development of Lantern Slides with Pyro.

BY F. C. BEACH.

[Read before the Society of Amateur Photographers of New York.]

Considerable progress has lately been made in the development of lantern slides, with the pyro developer, which seems to make one developer answer for negatives and positives, and dispense altogether with the necessity of the iron developer.

From a series of experiments I recently made on Carbutt's A plates, I learned that it was only necessary to use a very weak developer to obtain excellent slides of the proper density. I placed the negatives at a distance of 24 inches from a Carbutt lamp, and exposed (the sensitive plate being in contact with the negative in a frame) from 15 to 45 seconds, according to the density of the negative. I developed four plates at a time in one 6½ x 8½ tray, and used the ordinary Beach developer, as follows:

Pyro solution	40 minims.
Potash solution	30 "
Water	3 ounces.

The development proceeds very slowly, which is desirable, and takes about ten to 15 minutes, and it is advisable to make the blacks much darker than they should be, otherwise they will fall out too flat and thin in the hypo solution. The developer should be used fresh each time. I obtain very clear, high lights, without the use of any after-clearing solution, although I have no doubt it is desirable to employ it. If the developer stands too long, or is used a second or third time, it is liable to give the high lights a very slightly yellow tinge. I may say, several members of this society are developing slides with pyro very successfully, and their experience, together with my own, and that which I learn has been tried elsewhere, leads me to the conclusion that it is going to be the simplest and easiest method for making lantern slides. It amateurs knew they could use the same negative developer for lantern slides, more of the latter would be made. I do not object to the color of potash slides; if the exposure is nearly correct, it will be a dark brown. It is the sulphite of soda and sulphurous acid in the developer which prevents the pyro from staining the plate, and they thus play a most important part.

If the plate is under-exposed, you are not limited as with iron, but can secure a passable slide by the addition of more potash.

Then, again, the density of the slide is easily regulated; if you wish it to be very thin, suitable for a weak oil lantern, simply decrease by one-half the amount of pyro solution.

If you wish a purple tone, develop with only 10 minims of the pyro solution to 3 ounces of water; and, after fixing and washing thoroughly, slightly intensify with bichloride of mercury and cyanide of silver solution (or Monckhoven's intensifier).

To obtain a brown tone, according to Mr. Alvey A. Adee, add three or four drops of the following solution to the developer:

Citrate of soda	50 grains.
Water	1 ounce.

and slightly over-expose.

About Values.

We always associate painting with color. We think of Raphael and Titian as the great masters in color harmonies. Their works still enchant us. Why? We are honest. We do not say they are beautiful because we fear to say otherwise. There is a magic in them which abides. It is the magic of light and shade. Take away color, with most painters, and we say take away the picture. Rembrandt, with black and white only, makes all the grand effects of color.

Photography has but the one talent in the kingdom of art. It buries it, and sighs for the seven talents of the painter.

Look out of the window at noon. The brilliant light envelopes everything, and shows the gorgeousness of colors and the multiplicity of forms; yet nothing is remarkable. The row of houses, the trees, the church on the corner, the busy passers, are uninteresting as elements of a picture. Why is it so? Look again; it is towards sundown; a softness suffuses every object; the sky seems aglow; the roofs of the houses are bathed in a beautiful light; the houses themselves are in half shadows; the trees are fruitful with gradations; the church on the corner is transfigured.

Evening paints with broad touches; it obliterates unmeaning detail; it gives beauty of masses. The imagination is stimulated. We have all the conditions of harmony and beauty needed for a picture; the dominant light, the subordinate reflections, the shadows, the deeper shadows.

The painter, if he feels its influence, will seek to transfer it to his canvas. The photographer, if he sees it, will lament the loss of detail, and wait for the brilliant light.

Look at that head! what beauty, what

vigor, what transparency of shadows, what softness, and roundness, and strength!

Look how the light strikes that one spot, and wanders off by imperceptible steps to the deep places in the background! How superb the masses! There is no self-asserting detail. The painter is delighted. He feels inspired to reproduce it. The photographer looks. It is not sharp enough. Let us put in the smaller stop, and show our brother, the painter, the superiority of our art, and its truth to nature.

The Photographic Society of Philadelphia.

Special meeting, January 19, 1887.

In response to a call for a special meeting, issued by the president, the Society assembled at No. 1604 Chestnut street, on the evening of January 19, 1887, by invitation of Mr. L. J. Marcy, to examine and test the efficiency of his new "electric focus lamp" for the optical lantern.

The meeting was called to order by Vice-president Burroughs, after which Mr. Marcy described the new lamp.

The light was produced by the "arc" system, with carbon electrodes arranged and controlled in a peculiar manner. The negative electrode was held in a fixed place by pressure and a stop. The positive carbon was arranged to slant forward and downward from above, in such a manner as to allow its point to fall a little behind the negative electrode, thus throwing the concavity of the light mostly to the front, and producing an almost perfectly even illumination of the screen, free from shadows of the carbon points.

The slant of the carbon rod kept it in circuit by its own weight on the plate through which it slides, and which also directs and steadies its descent. An adjustable spring balances the force of the differential magnets to suit the current used, and the length of the arc desired.

The base of the lamp, which also forms that of the lantern, is wide so as to insure steadiness of the entire apparatus.

The brilliancy was such that the room was well illuminated by the light leaking from the various openings in the lantern, and the novel effect was experienced of a lantern exhibition in a room sufficiently light to enable all ordinary objects to be clearly seen, and persons recognized with perfect facility.

A large number of slides brought by members, were projected on the screen, many of them being extremely dense. Slides of this character, which the lime light had failed to penetrate properly, were fully brought out by the electric light, and those of ordinary density were reproduced with great brilliancy and perfection of detail.

The tremulous, undulatory variations common to the arc light, seemed to be entirely overcome by the apparatus, so that in steadiness, as well as brilliancy, the lime light was excelled.

The interesting and successful exhibition of the apparatus afforded great gratification to the members present, which was expressed by a vote of thanks to Mr. Marcy for his courtesy, after which the meeting adjourned.

ROBERT S. REDFIELD, *Secretary.*

Minutes of the stated meeting held February 2, 1887.

President Frederic Graff in the chair.

The resignations of C. L. Harrison and G. Walter Bates were read and accepted.

An invitation was read from the New Orleans Camera Club, to their first exhibit and sciopticon display, February 8, 1887.

The Executive Committee presented their annual report, showing for the year a net gain of nine, and a total of one hundred and forty members.

The report of the Lantern Exhibition Committee was accepted, and the committee discharged.

The Committee on Membership reported the election as active members of William B. Rogers and Thomas A. Lane.

Mr. Ellis moved that the members of the society be permitted to give exhibitions of their own in the room of the society, at such times, and under such regulations, as the Executive Committee may deem proper, the room being open during such exhibitions to all the members.

The subject was referred to the Executive Committee for consideration.

The paper for the evening was read by William Bell upon the preparation of gelatine bromide emulsion, coating the plates, and drying the same in connection with his newly designed drying box and closet. Mr. Bell read the process of Professor Newberry for the preparation of gelatine dry plates, and explained the manner in which, he considered, improvement could be made upon his methods. He then demonstrated the use of his cabinet, which consisted of a case, covering a floor space of only 30 x 20 inches, and about 4 feet high. It is enclosed by tight-fitting doors; racks sufficient to hold 204 5 x 7 plates are arranged one upon the other, and hold the plates securely and apart in saw-teeth notches. A current of air for drying is brought in from out-doors by means of a wooden trough, which is attached to the bottom and back of the cabinet, rises through the layer of plates, and passes out again at the top through a chimney connected with the dark lantern, which stands upon one side of the top of the cabinet, a free circulation being maintained by the heated air from the lamp. Upon top and to the left of the cabinet, stands a case about 18 inches square, in which is an ice chamber for cooling and setting the emulsion; the plates are laid upon a series of four glass shelves, each shelf being leveled by an ingenious arrangement from the outside. A plate, on being coated, is placed upon the upper shelf; others following, by the time the lower shelf is reached (some three or four minutes) those first inserted are well set and ready to be placed in the drying closet beneath; an iron tank for ice, in warm weather, is at the base of the closet, and to insure freedom from dust, the current of air may be required to pass through gauze, saturated with glycerine.

A vote of thanks was tendered Mr. Bell for his kindness in bringing the appliance before the meeting.

Mr. Wood exhibited the handsome bronze medal awarded him by the Photographic Society of Great Britain, at their late exhibition.

Mr. Carbutt showed thirty lantern slides from negatives made by him of buildings on the streets of Chicago, previous to the great fire. The slides were made upon gelatine plates, and were remarkable for their clearness and fine tone.

Mr. Carbutt called attention to the use of citrate of ammonia in the developer for transparencies; he thought it gave a rich tone, and kept the shadows clear. Mr. Carbutt alluded to a foggy deposit which at times appears upon old lantern slides between the film and glass cover; he suggested that it might be a fungoid growth upon the gelatine, and stated that it can be prevented or removed by flowing the plate with a collodion, 4 grains of cotton to the ounce.

Mr. Rau stated that he had observed the same foggy appearance in wet slides, and upon separating the glasses, found the deposit to be upon the cover, which was readily cleaned again.

Mr. S. Sartain announced that by special arrangement made with the directors of the American Exhibition in London, pictures which may be sent by members to the New York Exhibition can, at its close, be forwarded to London, and yet be admitted, although two weeks after the advertised date of closing for admissions. Adjourned.

Abstract of the Proceedings of the Society of Amateur Photographers of New York.

A regular meeting of this society was held at the rooms, January 11th; President Beach in the chair, and Mr. Geo. H. Cook acting as Secretary.

The Librarian reported a number of additions to the library, by gifts from authors and publishers, and also by purchase.

The Secretary read a portion of the circular announcing the particulars of the Joint Photographic Exhibition, to be held during the week of March 26th to April 2d, in New York City. The President made a few remarks relative to the exhibition, urging the importance of the interest of all the members for the success of the enterprise. He also spoke of the increased facilities afforded by the enlargement and improvement in the society's dark-rooms, and of the satisfaction it gave him of the growing interest of the members in the practical and scientific province of photography. The President exhibited an improved form of the Hoover Shutter, and demonstrated the ease and accuracy with which it could be worked.

Specimens of the Woodbury Tissue were shown, and points connected with the new material were touched upon in a paper entitled "The Vergara Slide and the Improved Woodbury Tissue;" and a picture, by way of practical illustration, developed upon the film. The President narrated his experience with the tissue, and remarked upon the satisfaction it had given him, by reason of its rapidity and its transparency, and the ease with which it could be developed.

A short recess was taken, the lights were turned down, and members were invited to come up to the stand and witness the development of the film. Mr. Beach opened an Anthony holder having an exposed film held on the face of a glass plate (4x5). On removing the film, he slipped it edgewise under water in a tray, letting it remain there for two minutes, while he mixed the developer, as follows: To one and a half ounces of water, 50 minims of the Beach pyro and 40 minims of the potash solution was added. This was poured into a second tray; then the wet tissue was removed, and dexterously slipped under the developer to avoid air bubbles, and the dish rocked. In about a minute's time, the picture appeared faintly; but on lifting the tissue out and turning it over, a very strong image was visible, showing that by accident the exposed face of the film had been placed downward in the developer. This, however, did not interfere with the progress of the development, but simply proved that, because of the thinness of the tissue, development was quickly observable from either side.

The shadows kept very clear, and the development proceeded regularly. The tissue retained its flat form, showing no tendency to curl. Within five minutes, the development was completed; then the developer was poured off, and the film cleansed with one or two changes of water; after this it was placed in the hypo, 1 to 6, to fix.

An excellent negative, representing a snow scene, resulted, full of detail and half tones. The exposure was made with a Ross rapid symmetrical lens, *f*-40, in three seconds, at 3 o'clock in the afternoon during a snow storm.

Mr. Beach mentioned that it was very important to handle the tissue carefully, as the gelatine film was likely to loosen from the support at the corners, where held between the fingers, making the film liable to turn back upon itself.

The film, when dry, by reflected light presents a peculiar wrinkled appearance, which one would suppose would materially prevent the obtaining of sharp silver prints. But in practice, it is found that the pressure of the printing frame compels the sensitive paper to fill the depressions in the film, thereby producing a distinct print.

A specimen dry negative was passed around, with silver prints made from each side. The President suggested the feasibility of squeegeeing the film on hard rubber, to make the tissue dry smoothly.

The success of the experiment showed that the process was much more simple, and easier to work, than the stripping of films from paper; and was destined to have an important bearing, in the future, as a practical substitute for glass. Mr. Beach had not tested the rapidity of the tissue on a sensitometer, but from his few experiments thought it might be a trifle slower than Cramer's lightning plates.

M. DeWitt Hoover then showed the process of developing the new ferrotype plate recently introduced by the Phœnix Plate Co., and obtained two excellent ferrotypes, which were exhibited to the members.

A paper entitled "Development in the Field," by Mr. W. E. Partridge, was read by the Secretary, and another by Mr. Beach, on "Development of Lantern Slides with Pyro."

The following questions were discussed: "The light of the 'dark room,' and its effects on the eyes."

"What other glass may be used with safety, besides ruby or orange."

The injurious effect of ruby light upon the eyes, was dwelt upon by Dr. Janeway, and suggestions for modification offered. The views of Charles Kinderman and David Cooper were quoted. The first preferring the combination of chrome green, orange yellow, and opal white-glass, which constituted a very agreeable light to work by. Mr. Cooper, in his article in *Scovill's Photographic Annual*, says that the most pleasant light, and at the same time as safe as is needful, is secured by double thickness of post-office paper.

Mr. Newton remarked that the ruby color acts upon the nervous system—not only upon the eyes, but upon the whole system—and said, "if you inclose a man in a glass case of ruby color, and keep him there, you will make a lunatic of him in about three days. He had occasion, many years ago, to go through a pretty exhaustive line of experiments upon this question. A gentleman from Bahai, William Ginsley, brought a paper here, written by a scientist there, Gutzlaf, upon this question, which asserverated the conclusions of Professor Becquerel upon the action of the least refrangible rays, that is the orange, the yellow, and the red. A committee was appointed, of which I was appointed chairman. A line of experiments was conducted for the purpose of determining the correctness of Becquerel's theory. The committee determined that actinism was a property of light resident in all rays in the ratio of the wave lengths. Mr. Newton continued, "It is known to any one who has studied color, that red and green are complimentary colors, and it has been shown to this society just what those two colors would produce. I don't remember the gentleman's name."

"It showed just what I claim, that the effect of that combination upon the optic nerve is the same as white light. I could not procure the kind of green that I wanted, and, therefore, I dissolved aniline in the ordinary negative varnish, and obtained the colors I wanted to produce, and exhibited the proper colors of red and green to the society. Cathedral green is not a safe color, besides it obstructs the rays of the light. You want an emerald green. You don't want a blue-green. I will get some of those two colors, and bring them here, and then you can see them put together, and hold them up to a light, and see the different effects on a piece of white paper, showing you just what I am talking about, and you will understand it better. There may be some shades of green that don't obstruct the actinic rays at all. The glass should be a yellowish-green, and not a blue."

After further discussion upon the subject, in which a number of members took part, the meeting was adjourned.

Pacific Coast Amateur Photographic Association.

To the lives of most persons come seasons of peculiar satisfaction and days of success, and the same thing occurs in the existence of societies; such was the experience of the Pacific Coast Amateur Photographic Association, on Thursday evening, the 6th inst., the date of its regular monthly meeting, when the large attendance at its pleasant rooms showed the general interest felt in its affairs, and put the directors to thinkihg how much of an appropriation would have to be made to the furniture fund for purchases of additional chairs.

The Secretary's report showed thirty-six active members present, besides several visitors, and the evening was one of the most pleasant of many happy hours spent in the rooms; yet with all the good feeling there was a shadow of sadness, for one chair that was wont to be occupied by one our most beloved members, Mr. Virgil Williams, was vacant. Taken from our midst since our last meeting, by a sudden and unexpected death, our society has been deprived of a genial friend, whose kindly counsel and artistic promptings have been invaluable.

Mr. Williams was the director and moving spirit of our school of design, and was well known both here and in the city of Boston, where, for awhile, he had his studio, and we doubt that among our artists there was one who was more thoroughly acquainted with the history and technique of art in all schools of its existence. Eloquent and feeling tributes to his memory were paid by Mr. Treat, ably supplemented by Mr. Le Breton.

The feature of the evening was a lecture by Mr. H. S. Bellsmith (who is visiting at this coast in the interests of Eastman & Co.), on the use of bromide paper in contact printing, and in enlargements, and his concise and intelligent remarks, illustrated by numerous specimens of enlargements, in size up to 24x40, were listened to with marked interest, and called forth many inquiries and much admiration; later in the evening, Mr. Bellsmith, in the dark room of the society, demonstrated the development of enlargements made with the apparatus of the society during the afternoon of the day of the meeting; and also showed a large collection of negatives, both stripped and paper, and prints made by same, and had the pleasant satisfaction of making many converts to the use of (on this coast, the hitherto neglected) film. Mr. Bellsmith was pleased to say that he had nowhere, in the societies he had visited, seen such good specimens of bromide work as in the rooms of this association, all of which may have been prompted by the pleasant surroundings, but which we hope is nevertheless true.

After the active work of the evening, Mr. Le Breton invited those present to visit his luxuriously furnished rooms, in the same building, to test the effect of a new developer (of good feeling), it was of a light straw color, pleasant to the eye, and was contained in a Japanese bowl, on a table, and had to be kept cool with ice, and was measured out with a ladle, a little, more or less, seemed to make no difference, though more intense feelings were produced by a second application ot the same strength. It was voted to be more of a success than the new restrainer (beer) that the English journals are recommending.

The next meeting (February) is to be a lantern night, and members are notified to have a good supply of *new* slides. This is to show you that we are not asleep on the Pacific Coast.

SIDNEY M. SMITH, *Corresponding Sec.*

Meeting of Executive Committee of Photographers' Association of America.

PALMER HOUSE, CHICAGO,
January 15, 1887.

President G. Cramer in the chair. Upon roll call, the following members responded: President, G. Cramer, St. Louis, Mo.; Treasurer, G. M. Carlisle, Providence, R. I. Members of the Executive Committee: J. Landy, Cincinnati, O.; W. V. Ranger, Syracuse, N. Y. Also, the following past officers: W. H. Potter, Indianapolis, Ind.; H. McMichael, Buffalo, N. Y.; D. R. Clark, Indianapolis, Ind.

A communication was read from Secretary Bellsmith, dated Portland, Oregon, December 21, 1886, setting forth that business engagements had made it impossible for him to meet with the Executive Committee, very much to his regret; but that later he would return, and would then be able to devote proper attention to the duties of his office. Letter ordered placed on file.

It was then moved and seconded that the Treasurer act as Secretary pro tem. Carried, and G. M. Carlisle, of Providence, R. I., immediately assumed the duties ot Secretary.

Report of Treasurer was read and referred to the following Auditing Committee, appointed by the Chair: J. Landy, Cincinnati, O.; W. H. Potter, Indianapolis, Ind.; W. V. Ranger, Syracuse, N. Y.

Report of Secretary was read and referred to same Auditing Committee.

Committee on Incorporation made their report, and presented a charter granted by and under the laws of the state of Illinois. The charter was accepted, and the names Gayton A. Douglass, Charles Gentili, and E. L. Brand, engrossed therein, were continued as trustees until the next annual election of officers. A vote of thanks was tendered the committee who obtained for the Association a charter.

A communication was received from Mr. Gayton A. Douglass, resigning as a trustee under our charter. Resignation accepted.

Moved and seconded, that W. H. Potter,

of Indianapolis, be elected to fill the vacancy, and Mr. Potter was duly elected a trustee.

Mr. L. W. Felt was nominated as local secretary, and C. Gentili and J. Landy were appointed a committee to wait upon Mr. Felt, and learn if he would serve the Association.

Motion was made and seconded, that the local secretary be paid $250 for the performance of the whole duty of local secretary. Motion carried.

The committee appointed to wait upon Mr. Felt made a report to the effect that Mr. Felt said that his business interests made it impossible for him to serve the Association as local secretary. Report accepted, and committee discharged.

Resolved, That the prizes for exhibits of photographic work shall be awarded by a committee of five members of the Association, to be appointed by the Executive Committee.

PRIZES FOR EXHIBITS FROM FOREIGN COUNTRIES.

For best exhibit of portrait photography from foreign countries, 1 gold medal; for best foreign exhibit of landscape or marine views, 1 silver medal.

FOR EXHIBITS OF MEMBERS OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA, RESIDENT OF THE UNITED STATES AND CANADA:

Class A. For collection of portrait photography of any size (cabinet pictures not competing for Class C, may be included in exhibits competing in this class), 1 grand prize, diamond badge, for the best exhibit; 4 gold medals, for superiority; 4 silver medals, for excellence.

Class B. For collection of large photographs; contact prints not to be less than 23 inches long; print not to be vignetted. 1 gold medal, for superiority; 1 silver medal, for excellence.

Class C. For collection of 24 cabinets, 10 bronze medals, for merit. Parties competing for this class cannot compete in any other class.

Class D. Composition or genre pictures of any size, 1 gold medal, for superiority; 1 silver medal, for excellence.

Class E. Landscapes, 1 gold medal, for superiority, 1 silver medal, for excellence.

Class F. Best marine views, 1 silver medal.

Class G. Best interiors, 1 silver medal.

Class H. Best instantaneous views, 1 silver medal.

Class I. Best architectural photography, 1 silver medal.

Class J. Best photo. transparencies, 1 silver medal.

Class K. Photography applied to science, 1 silver medal.

The grand prize in Class A is open to all members of the Photographers' Association of America.

Winners of gold medals at the Convention of 1886 are eligible only to the grand prize in Class A, this year.

Winners of silver medals at the Convention of 1886 are eligible only to gold medals or the grand prize this year.

Parties competing for the bronze medals of merit in Class C, are debarred from competition in any other class.

The Secretary shall furnish each member of the Awarding Committee a complete list of all competing entries, certified to by the Treasurer, that all such competitors are members of the Photographers' Association of America, and not in arrears for dues.

The Secretary shall also furnish each of the Judges a schedule of prizes to be awarded, and the necessary instructions as ordered by the Executive Committee, as follows:

INSTRUCTION TO JUDGES.

The Awarding Committee shall examine the entry lists, and see that the rules concerning competitors in Class C are carried out, excluding them from competition in other classes.

Each Judge shall separately make his examination of the competing exhibits, and decide upon the merits of the same, giving, in each class, number 10 to the best, number 9 to the second best, and so on, according to the number of medals offered.

The Awarding Committee shall have a special meeting before the Thursday morning session, and combine reports and come to a final conclusion by striking an average. Awards shall be made accordingly.

As all medals of one grade shall be of equal value, only the awards shall be reported in alphabetical order, and number of points received shall not be published.

RULES TO BE OBSERVED BY COMPETITORS FOR ASSOCIATION PRIZES:

First. All competing exhibits must be from negatives made since the St. Louis Convention, June 28, 1886.

Second. Any person desiring to compete, must remit dues to the Treasurer, G. M. Carlisle, Providence, R. I., before making entries.

Members annual dues, two dollars ($2.00.)

Non-members initiation fee and dues, five dollars ($5.00).

The treasurer will furnish the necessary blanks for entries, which must be filled and forwarded to C. Gentile, Local Secretary P. A. of A., Chicago, Illinois.

All entries to be in the hands of Local Secretary fifteen days previous to the opening of the Convention.

All competing exhibits must be without frame or glass.

No exhibit will be received unless the freight or express is prepaid.

Resolved, The space allowed to any exhibit shall not exceed twenty-five linear feet—and each space allotted shall be properly filled with pictures, subject to the rules and under control of the Local Secretary.

Resolved, That the exhibition of photographs connected with our convention be considered an Art Exhibition, pure and simple, and in order not to detract from this standard, be it

Resolved, That no signs of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7 x 12 inches in size, and to contain only name and address of photographer whose work it represents.

Resolved, That any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

Resolved, That the Executive Committee shall be charged with the duty of removing all objectionable features. Carried.

Resolved, That one silver medal be awarded for the best improvement in photo. apparatus or accessories, produced since the last Convention, on exhibition in the Stock Dealers' Department.

This prize to be awarded by a general vote of the Association, in Thursday morning session. The highest number of votes wins the prize. Voting tickets for this purpose to be furnished by the Treasurer when dues are paid.

Competitors for this prize are requested to file their entries for competition with the Local Secretary of the Photographers' Association of America, ten days previous to opening of Convention.

Moved and seconded, that 12 copies by type-writer be made of record of proceedings of Executive Committee, and a copy mailed to each publisher of photographic journals simultaneously. Carried.

A communication was received from W. H. H. Clark, of St. Louis; the same was read, and by vote was laid on the table.

COMMITTEES APPOINTED.

Treasurer Carlisle was authorized to obtain printed official stationery, and the Association Badges.

Committee on Obtaining Medels: W. H. Potter, H. McMichael, W. V. Ranger.

Committee on Foreign Exhibits: Messrs. E. & H. Anthony & Co., Scovill Manufacturing Co., G. Genert, of New York; C. Gentili, Chicago, Ill.

Committee on Progress on Photography: Dr. G. Nicol, Chicago, Ill.; J. Traill Taylor, London, Eng.; Dr. Herman Vogel, Berlin, Prussia; Dr. Eder, Vienna, Austria; Leon Vidal, Paris, France; Prof. Borlinetto.

Resolved, During the business session, the reading of a paper, or delivery of a lecture shall not exceed fifteen minutes. Passed.

Committee on Hotel Arrangements: C. Gentili, Chicago.

Committee on Railroad Rates: Gayton A. Douglass, Chicago, Ill.

Committee appointed to audit the books of the Treasurer and Secretary, found every dollar carefully accounted for, and desire to compliment those officers for efficient performance of their duties. J. Landy, W. V. Ranger, W. H. Potter, Auditing Committee.

Resolved, That W. V. Ranger be a committee of one to employ a stenographer. Carried.

Resolved, That the permanent Secretary be appointed a committee of one to revise the stenographer's report of the proceedings of the Convention of 1887, before they are given for publication.

Resolved, That one session be held from 9 a.m. until adjournment, each day during Convention.

Resolved, That the Art and Stock Department be closed each day from 9 a.m. to 12 m., to secure a full attendance at the meeting.

By and through recommendation of the Chicago photographers and stock dealers, C. Gentile was nominated as Local Secretary of the Photographers' Association of America for 1887. Unanimously elected.

PROGRAMME FOR CONVENTION.

First Day.—Address of welcome; response by president, and opening of convention; roll-call of members; reading minutes of last meeting; report of standing committees; report of executive committee by J. Landy; committee on constitution and by-laws; committee on progress of photography; appointing a committee to nominate officers for the ensuing year, who are to report next morning; selection of place for next convention; annual report of president; miscellaneous business.

Second Day.—Reading of communications; appointment of committee on awards; unfinished business; report of committee on nomination of officers; new business; reading essays; discussions.

Third Day.—Reading of communications; unfinished business; report of committee on awards; report of special committees; voting for medal of progress for photo apparatus and accessories.

Fourth Day.—Reading of communications; reports of committees; election of officers; unfinished business; new business; discussions and papers; closing ceremonies.

A cordial invitation is hereby extended to all foreigners connected in any way with photography, to attend our eighth annual convention, at Chicago, Illinois, U. S. A.

The date of holding the convention will be announced through the journals, at the earliest possible date.

Executive Committee,
G. M. CARLISLE,
Adjourned. *Secretary pro tem.*

Our Illustration.

THERE is a picture in one of the English galleries, which one never tires looking at. It is painted by Joshua Reynolds. It represents a little child caressing a dog. It is so simple, so natural, so true, that one needs not to be an artist to wholly delight in it. We are told that the father and mother of the little girl invited Sir Joshua to dine with them, that he and the child might get acquainted. The child sat next to him at the table, and the great painter amused her so much with tricks and stories that she thought him the most charming man in the world, and the next day was delighted with the proposition to be taken to his house, where she sat down with a face brim-full of glee, which he caught at once and impressed on the canvas. Now after looking at the series of beautiful child studies which Mr. G. M. Elton has so kindly lent us to embelish our magazine, we think we may venture to say that he, too, has learned the trick of getting into sympathy with the little ones. Children are great respecters of persons, and instinctive students of human nature. They can tell, better than we, the real from the sham; and one will never be able to coax the sweet smile of simplicity unless he, too, becomes a child, and ingenuously wins their hearts.

Mr. Elton, moreover, deserves great praise for the excellent quality of his work.

There is a beautiful softness in the high lights, and rich graduations in the shadows. Much taste is shown in the selection of the accessories, which are always in sympathy with the subject, and duly subordinated. This sacrifice of detail in the unessential parts of a picture,is always evidence of artistic feeling.

The negatives, we are told, were made upon the Inglis plate, which certainly gives evidence here of its good qualities, and the prints testify to the excellency of Morgan's albumen paper.

AT the last meeting of the Photographic Society of Philadelphia, Mr. John Carbutt showed a number of lantern slides which are especially valuable from a historic point of view. The negatives from which they were made were taken in Chicago between 1863 and 1871, and represent many of the buildings which were destroyed by the great fire. In one picture was shown the ruin which the flames had produced, while in another the phœnix, which had arisen from the ashes.

The slides themselves were remarkable for their quality; the high lights were vigorous, and the shadows deep, rich and full of detail. Mr. Carbutt attributes their beauty not to any alteration in the emulsion, which is the same hitherto employed, but to his modification of the developer. He finds a great clearing action in the use of citrate of ammonia in connection with the ferrous oxalate solution.

MARCY'S ELECTRIC FOCUS LAMP.—The application of the electric light to the illumination of the optical lantern was early thought of, but the unsteadiness has hitherto been the great drawback to its practical use. Mr. L. J. Marcy, of scioptican fame, has turned his attention to the problem of electric illumination for the lantern, and has produced an instrument easy to work, and yielding the most pleasing results.

We cannot enter into a description of the apparatus, but shall merely say that the arc system is employed, and the carbon electrodes so controlled as to throw the concavity of the light to the front, producing a perfectly uniform illumination of the screen, without the slightest shadow of the carbons. The light, though so intense as to penetrate a slide through which the lime light would be powerless, is remarkably soft and easy to the eye. The detail of the darkest portions of the transparency shows admirably, giving a fine stereoscopic effect upon the screen.

A novel feature is the production of a brilliant picture in a room light enough for a lecturer to read his notes and to distinctly see his auditors.

Not only in brilliancy, but also in the perfect freedom from tremulousness and in ease of working, is the Marcy electric lamp superior to any lime light.

THE joint exhibition of photography of the three societies, which will take place in New York, March 26th to April 2d, promises to be a grand display of art.

There will be contributions from all the prominent American and European amateurs and professionals, which, combined with the select work of the members of the three societies, will probably eclipse anything of the kind we have yet given in this country.

All pictures must be sent, *charges prepaid*, to the Society of Amateur Photographers of New York, 122 West Thirty-sixth street, New York City, endorsed "For Annual Exhibition," and delivered before 9 P. M. Saturday evening, March 19th, 1887.

No pictures can be received at the gallery.

All correspondence must be addressed to C. W. Canfield, Chairman, 122 West Thirty-sixth street, New York, N. Y.

MESSRS. WILSON, HOOD & CO., late of 825 Arch street, are now in their new quarters, No. 910 Arch street. The large and well-lighted appartments are filled with a supply of everything the photographer desires.

The firm shows much taste not only in the decorations and furniture, but also in the admirable way in which the commodities are displayed.

Orthochromatic Photography.

BY J. B. B. WELLINGTON.

A Communication to the London and Provincial Photographic Association.

Orthochromatic photography, although not new, is at the present time receiving a large amount of attention, both by dry plate makers and photographers. It is a curious fact, that a discovery to render the yellows lighter than the blues was not taken up with more zeal at the time of its discovery, and that it should have laid semi-dormant for some years, until a commercial firm takes to supplying the public, which starts it into life again. I am referring only to England, as on the Continent they have employed it for some years, but we English are always somewhat behindhand in taking up a new discovery.

I am not going to discuss who is the legitimate claimant of producing orthochromatic effect in photography; but it is my intention this evening to give you the results of my experiments as far as I have gone (there is nothing original in the chemical I employ, it being erythrosin, and that was discovered years back), and to place in your hands a really good orthochromatic formula, but with one drawback—they will not keep many days.

The formulæ which have been published, compounded with eosine and ammonia, into which dry plates are to be dipped, have in my hands proved useless, and I believe others have found the same. One of my experiments shows me that chloride of silver, dissolved in ammonia with eosine, and used as a bath, gives orthochromatic effect, and I should imagine that, if a plate is made containing chloride of silver, and then bathed in a solution of ammonia and eosine, it ought to answer ; probably this may account for the failures of those using the ammonia eosine bath with ordinary plates. After various experiments with different compounds with eosine or erythrosin, I found that carbonate of silver, dissolved in excess of carbonate of ammonia and mixed with the erythrosin, gave me the best effect.

The orthochromatic effect in a plate is due not to eosine, or any other stain being an optical sensitizer, as some state, because you may stain the film as much as you please, still the yellows will refuse to impress themselves upon the film; but I believe it is due more to a chemical change, which is produced by having free silver present, as well as a new compound formed with the erythrosin.

Although I discovered the above (*i.e.*, the use of silver carbonate with eosine), quite independent of anything that had been published, I see that I have been somewhat forestalled in the publication of the formula, as last week in the *News* appeared a formula with ammonia, silver, and eosine, by Vogel; and, I think, the week previous another formula, containing fluoride of silver, carbonate of ammonia, and eosine, which practically amounts to the same as I have given above. Mr. Hastings will bear me out in what I say, as I confided by formula to him some four or five weeks ago. However, I need hardly trouble you with all this.

After trying various proportions, I find the following to work fairly well:

Silver nitrate	20 grains
Ammonium carbonate .	90 grains
Water, distilled	16 ounces
Erythrosin (2.100) . . .	10 drahms

The plates are placed in this for two minutes. A rinse in distilled water gives less chance of stains, and then placed in a rack to dry. Let me here state that if they are used in the moist condition the orthochromatic effect is practically *nil;* they must be used quite dry. By this treatment the plate is rendered three times more sensitive.

I must insist upon the necessity of using only ruby light, the plates having now become so sensitive to yellow that the greatest precaution must be taken in handling them.

My chief reason in not giving you this formula before was the great difficulty of developing the plates free from fog; this I am glad to say I have now overcome. I pass around a plate half of which is quite free from fog. This was got rid of by soaking the exposed plate before developing in the following:

Potassium bromide .	120 grains
Ammonia	½ ounce
Water	12 ounces

Do not allow it to remain more than thirty seconds, well rinse under the tap, and proceed to develop with any of the usual developers—ammonia, potash, or ferrous oxalate.

If there be much blue in the object to be copied, a yellow screen must be used if exposure is to be made by daylight, although by gas or lamplight it is quite unnecessary. The best effect is always secured by gaslight exposure.

A very good substitute for colored glass is to color a collodion film and strip it from glass. The glass should be rubbed over with talc or a solution of wax in ether, and well polished off, and coated with collodion containing methyl orange. The dried film should appear decidedly orange. The stripped film can then be gummed to the cap of lens, having cut out the centre first, and used preferably behind the lens.

The carbonate of silver and erythrosin may be mixed with an emulsion, but requires great care. It should be mixed at as low a temperature as possible, and the plates used as soon as they are dry, as their life is very short. The orthochromatic effect is very marked, and the speed increased about ten times. If anyone is desirous of trying this, I give the following:

Emulsion (containing say, 200 grains silver	10 ounces
Silver nitrate	10 grains
Ammonium carbonate . .	45 grains
Erythrosin (2.1000) . . .	10 drachms

Before development they must be treated with the ammonia and bromide.

Very fine results can be obtained from collodion emulsion—in fact, the results far surpass gelatine, and can be used by daylight without the necessity of employing a yellow screen at all, but, alas! like gelatine, do not appear to keep any better.

The bath for a collodion emulsion plate is best made as follows :

Silver nitrate	10 grains
Ammonium carbonate	45 "
Water	2 drachms
Spirit, methylated . .	8 ounces
Erythrosin (2·1000) . .	5 drachms

Dissolve the silver in a test-tube, by heat, in two drachms water, and add the carbonate of ammonia, bit by bit, till all dissolved. Add the spirit gradually to the hot solution, and finally the erythrosin. Place the dried collodion plate in this solution for two minutes, and dry; the plate, before development, to be treated with the ammonia and bromide, and developed by ferrous oxalate, three to one, to each ounce of which add three grains of bromide.

If mixed with the emulsion, it begins to fog at the end of three days, so it is better to dip the plates as required. The exposure is only four times more than a fairly ordinary rapid gelatine plate by daylight, and by gaslight they are about equal.

The action of the erythrosin silver compound renders the collodion film exceedingly tough, very much like an alumed gelatine film, and is very difficult to scrub off the glass afterwards.

I must now leave you to try for yourselves all I have stated, and trust some of our members will make further experiments to produce something better and more lasting than what I have done.

Concerning the New Eosin Silver Plates.

Translated from the Photo Notizen.

The editor has lately remarked upon the great progress in the color-sensitive process, by which plates may be exposed without the interposition of the yellow screen, which departure we are first indebted to Obernetter. Since the first publication of Obernetter's method, in June of last year, and the comparisons which were then made on landscape exposures, great progress has been made.

Hitherto, the color sensitive plates had only a special application to reproduction work.

The portrait photographer, the landscape photographer, and the rest did not bother their heads much about the discovery, notwithstanding fruitful results had been obtained in the various departments.

(See H. Vogel's Photography of Colored Objects, Berlin Oppenheim, page 107).

Now all at once the color sensitive plate for landscape has sprung into prominence, and one no longer doubts of its general application.

This movement is a result of comparative experiments made in exposing plates.

One must have gained the experience which Obernetter first acquired, and after him Goebl in Witten, and then Schlitzberger, in successive landscape exposures, respectively upon ordinary and color sensitive plates before one can appreciate the great superiority of the latter.

The elimination of the glass screen is only one step in the progress. Improvement is in the direction of increased sensitiveness.

Obernetter and myself have succeeded in preparing Eosin silver plates which yielded good instantaneous exposures (now when the winter sun at noon is not brighter than it is at 7 o'clock in the evening in midsummer) while an ordinary plate gave only the highest lights.

This high degree of sensitiveness gives the Eosin silver plate the advantage, to say nothing of the rendering of the proper color values.

But he must direct attention to the fact that the introduction of the new process will nrcessarily be attended with a percentage of failures.

Private communications have reached me in which complaint is made that no perceptible difference in the results have been obtained between an ordinary plate and the Eosin plate on landscapes.

I can readily believe this, inasmuch as nature is at present not in her colored garb, but dressed in grey, and cannot attest, therefore, to the worth of the color sensitive plate.

Another writes he has gotten spots on his plates. No wonder, when there are dry plates in commerce which are so smeared on the backs with substances that particles are detached in the bath to which the plate is subjected, and become glued upon the face. The remedy is a preliminary bath in pure water, by which the particles are carried away.

A third writer sends me an Erythrosin plate which has given no result.

Experiment proved that it did not contain Erythrosin, but impure Eosin.

In fact, pure Erythrosin is a scarce article in trade. The impurities are less injurious when dye stuff alone is employed. They act very disastrously, however, when the silver nitrate is used in connection with the new plates: Every slight excess of silver increases the evil. I have therefore recommended one-half or three-quarters the amou nt of silver.

Future experiments will have to determine just which dye stuff or which mixture is the best for the new plates.

If a good Rose Bengal cannot be obtained, then take Erythrosin alone, or with Eosin, according to receipt in No. 263 "Photo Notiz." The quantity to be used is regulated by the emulsion. Every emulsion acts differently. The increase of the quantity of silver increases the sensitiveness, but great care is necessary. The plates keep about a week.

Of late, Obernetter and myself have succeeded in making plates with Prentz emulsion, which remained unchanged over a month, and gives prospects of their preparation for commerce.

The character of the developer is of very great importance.

Obernetter recommended (in II number of June "Photo Mittheilungen") pyro soda. I have developed the majority of my eosin silver plates with the following developer, recommended by the firm of Sachs:

(1) 500 g. water.
100 g. neutral sulphite soda.
14 g. pyro.

(2) 1000 g. water.
50 g. (cryst.) carbonate soda.

20 ccm. of No. 1, and 40 ccm. No. 2, is sufficient for 18x13 plate.

H. W. VOGEL.

THE paper on "Intensifying Collodion Negatives for Photo-Engraving," communicated by Mr. Fred. E. Ives to Liesegang's *Photo Annual*, has suffered somewhat by its reappearance in English.

We are indebted to Mr. Ives for the correction.

The ordinary copper bromide method does not give the density which is often necessary for photo-mechanical processes, except by two applications, followed by the use of an alkaline sulphide.

Mr. Ives recommends the bleaching of the negative in bromide of copper solution, followed by a thorough washing under the tap; then the immersion in a *weak* solution of iodide of ammonium, which changes the color to a yellowish-green; another thorough washing is given; the plate and the solution of silver applied. The resulting negative is far more opaque than when the bromide of copper alone is used. The color is also much more non-actinic.

Expression in Portraits.

Thomas Couture, the great French painter, in his delightful little book, *Methode et Entretiens d'Atelier*, gives some hints to portrait painters for securing good expression for their sitters, which may be profitably read by photographers. He says: "There are in nature characteristics which are charming. The features and forms, which give to every one a particular character, are what are necessary to respect. It is well even to develop them, and you can do so without fear.

Be careful not to give to your portrait theatrical positions, be simple and modest in your pose, as in your expression.

We must be in sympathy with the portrait we work upon. Give above all things an air of gentility to what you represent. If a woman is your model, let her direct you.

She knows better than you her best physical qualities, and will display them to the best advantage, if unmolested. She will, if unconstrained, put on her best expression. Profit by it, do not let it escape you.

If she possess irregular features, she will hide the defect by a lively and joyous expression.

This coquetry is the best help that a true artist can have. The painter ought to converse with his model. If a man, interest him as much ss possible and keep him from becoming stiff.

The only thing to fear is the anxiety of the sitter; desiring to have a good portrait, he will overdo the thing; you have to fight against this; try to give him confidence in you, and talk to him in a way to make him natural. To know how to converse with a model is one of the talents of a portrait painter.

Use one quarter of the time drawing (photographing), three quarters in looking at nature.

As a portrait painter accustom yourselt to divide your forces; one half of you must be the painter (*Photographer*), the other the agreeable companion. You ought always to make your model forget he is your model. Rapidity of execution is one of the elements of success in portrait painting.

Apparatus for Making Emulsion and Coating Plates.

At the last meeting of the Philadelphia Photographic Society, Mr. Bell exhibited a very convenient and compact cabinet for the preparation of gelatine plates. The whole apparatus is not more than 20x30 inches at the base and about 4 feet high. Yet, within the space, there is a drying chamber capable of holding 204 5x7 plates. An ingenius device supplies a continuous current of fresh air without the admission of light. The air passes over the plates, and is conducted out at the top through a chimney connected with the dark lantern, the entrance of dust being prevented by a screen saturated with glycerine. There is also a cooling chamber, supplied with an apartment for ice. In this chamber the flowed plates are placed to set upon an arrangement by which they are kept perfectly level, which secures a uniform film. When hardened, they are transferred to the dryiny chmber.

The whole operation from the coating of the plates to the completion of the plate, was gone through by Mr. Bell, showing the ease with which the process could be performed.

Mr. Bell made some remarks on emulsion making. While he endorsed the views of Professor Newberry, he differed with him in certain particulars in manipulation, in the addition of the chemicals to the gelatine, and the washing of the final product.

The emulsion is prepared by Mr. Bell and supplied separately or with the apparatus.

THE CONVENTION.—We publish in full the report of the minutes of the Executive Committee of the P. A. of A.

The gentlemen who form this committee are earnest and untiring in their efforts to give fair play to all competitors who are not unreasonable. They are doing all in their power to make the Chicago Convention a success, and it only needs the cooperation of the members to make assurance double sure.

We are glad the arrangements are in the hands of such competent men; and with our confidence in the executive ability of the President, we predict a glorious Convention next August.

WE have received the first number of the "Swiss Cross," the monthly magazine of the Agassiz Association; edited by Harlan H. Ballard, and published at No. 47 Lafayette St., N. Y.

Its aim is to cultivate and foster a taste for the study of nature. The papers contained in the present number are excellently written, and are calculated to stimulate thought and investigation in youthful readers.

February Bargain List.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition,	8 00
1—Papier Mache Pedestals and Bases, good order, each	3 50
1—Papier Mache Wainscoting, fair order,	3 50
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—Centennial Camera Stand, in good condition	11 00
2—Tall Head Rests, price each	2 00
1—Papier Mache Log, 2 feet long	2 00
1—8x10 Osborne Interior, "new," light left of subject	16 00
1—Pharaoh Position Chair	20 00
1—Seavey Rock, new	4 50
1—10 inch Rotary Burnisher, Entrekin	10 00
1—Seavey baby shell, with background, complete	5 00
1—5x8 Eastman's Roll Holder, in good condition	15 00
1—8x10 Eastman's Roll Holder, good as new	20 00
10 Reams Second Choice Pearl Albumen Paper	20 00

Camera Boxes.

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—4x7½ Stereo Box (wet plate) and Plate Holder, fitted with a matched pair Zantmeyer Lenses	30 00
1—6½x8½ Portrait Box and Plate Holder, fair condition	6 00
1—5x8 A O Co. first quality box, 4 double holders, carrying case tripod. 1 5x6 Dallmyer R R Lens, used very little, good as new	68 00
1—½ size Am. Op. Co. D. S. B. Portrait Camera, fitted with ½ size Ross Lens	45 00
1—5x8 Am. Op. Co. Camera	6 50
1—4x5 Equipment, No. 4, Anthony's View Camera and 6 Holders	15 00

Lenses.

1—13x16 Harrison Globe Lens W.	20 00
1—1-4 Size Darlot Gem Lens	3 00
1—11x14 C. C. Harrison, Central Stops.	35 00
1—Ross Symmetrical Lens, 4½ inch focus, 5x8 plate full	25 00
1—Finder	2 25
1—Prosh Shutter No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched Pair imitation Dallmeyer Lenses, per pair	12 00
1—Abendroth Lens, 5x8	40 00
1— " " 8x10	40 00
1—4x4 Dalmeyer Port Lens	50 00
1—4x5 Dalmeyer View Lens	6 00
1—5x8 " "	15 00
1—Woodward Condensing Lens	10 00

WANTED.—Situation as first-class Printer; can operate, if necessary; good wages required; good reference. Address J. B. Holver, No. 2½ Chamberlain St., Rochester, N. Y.

WANTED—Position in a first-class Gallery as retoucher or printer; best reference. Address L. Wendenburg, College Hill, Easton, Pa.

WANTED—Situation by a photographer; good printer, toner and finisher, with some experience in operating. Best reference. Address Jacob Sheidt, P. O. Box 317, Ashland, Ohio.

WANTED—A Portable House or Photo. Car. Apply Thos. H. McCollin & Co., 635 Arch Street, Philadelphia.

Superior Mammoth Voitlander Tube, the property of a retired photographer, will be sold low. Apply at the Husted Studio, Ridge Ave. and Wallace St.

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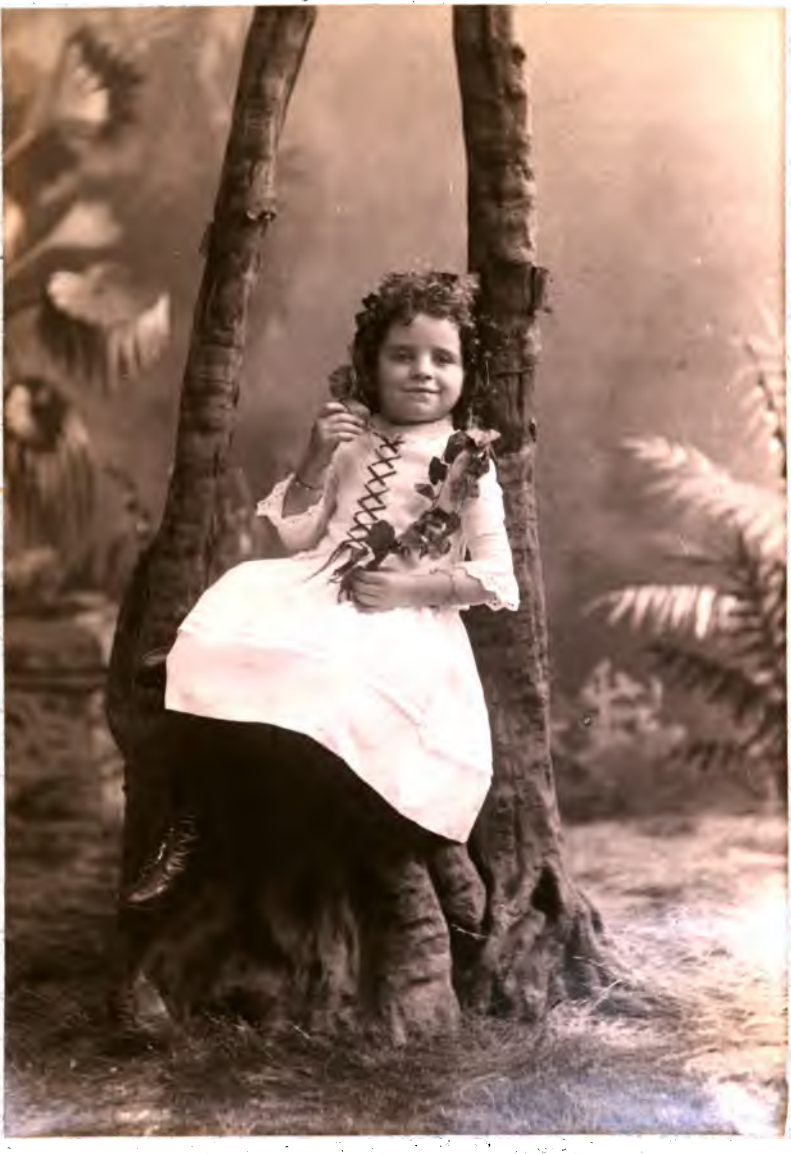

Negative by A. E. Taylor, Clinton, Wis.

PRINTED ON MORGAN'S, BRILLIANT ALBUMEN PAPER.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, MARCH, 1887. NO. 3.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
—PUBLISHED MONTHLY.—
$1.00 per Annum, in Advance.

Bromide Paper—Its Practical Applications and Successful Working

BY WILLIAM H. RAU.

Comparatively few seem to appreciate the uses of bromide paper, but gradually the interest is growing, and soon we may expect everyone to be familiar with its many uses.

I shall mention some of the applications that appear to me especially good.

Where a few, or even a great number, of prints are wanted for book illustrations, it offers special advantages, giving a flat print, without mounting, of a tone which is certainly artistic and rich in color, surpassing, in these qualities, the platinum print.

For contact printing, I would briefly advise that a lamp, or gas-jet, be used, in preference to the employment of daylight, as the time can better be regulated and judged of, with less failures.

I use Carbutt's "Multum in Parvo" lantern, having the wick always well trimmed.

Having first examined by daylight the negative to be printed from, this being necessary to correctly estimate the density, as the yellow color in a negative cannot be seen by any other light, then decide on the time. Be sure to have the flame always of the same size, and mark the distance of the frame from the lantern (say eighteen inches), thus insuring uniformity to the results.

For small contact prints, I prefer the B grade of paper, but when they are to be mounted, the A is preferable. I use fresh developer on every print. If in doubt about the exposure, use half the iron, and only add the full strength when you find the print slow in coming up.

When a customer is in a hurry, and anxious to have a print in the shortest time possible, the paper can be wet and squeegeed in contact with the wet negative, and a print made without delay.

I have seen prints made on C grade which had all the appearance of fine photogravures, and were admired by all who saw them, the rough surface giving them an artistic finish.

Another use for bromide paper, is the reproduction of line drawings from plans of architects, engineers, etc.

Having been called upon to reproduce eight drawings, which were on heavy bristol board, about as heavy as No. 1 white card mounts, 11x14 in size, and having but a few hours in which to do the work, I at once arranged to use the bromide paper, B grade, placing the gelatine face in contact with the face of the drawing, using plenty of padding in the back of the printing frame, to insure perfect contact of the two surfaces. The day being cloudy, I exposed three seconds, and obtained perfectly sharp negatives, with clear white lines, on a solid black ground. The development should be continued a long time, to secure this rich contrast, and the dish actively moved. Having made the eight negatives, and thoroughly washed them separately under a tap, I placed eight sheets of unexposed paper in a clean dish of water, and handled them a few minutes, until thoroughly wet, then floated one in contact, face to face, with the paper negative just made, floated both on the 11x14 glass, and drained well; then placed the same in the printing frame, and made the exposure, three seconds in very weak daylight; printing them well before developing any, then one after the other was developed. The results were exact reproductions in size and color of the originals, which would have been impossible by the ordinary methods. They were delivered to the customer the same afternoon, wet as they were, as they were needed in a patent case.

For enlarging, the bromide paper claims the attention of everyone interested in photography, as small negatives can be so readily used to enlarge from, and save the weight of a large camera in the field. Amateurs are recognizing this more every day. While a few prefer silver prints, the majority are pleased with the artistic grey, black-and-white color of the bromide print.

Mr. George B. Wood, of this city, being one of the first to appreciate the advantage of this method, has prepared a fine exhibit for the New York Joint Exhibition, which will certainly attract a great deal of attention.

The professional photographer, as a rule, has so far slighted it, but is gradually coming in, and soon will be using it more. I have noticed that too many expect impossibilities from bromide enlargement. They seem to think that any kind of negative should give a good result. The folly of this is evident, as only good negatives yield fine enlargements; just the same as in any other process, a good negative gives the best result.

I have used daylight exclusively for enlarging, and have made prints up to 30x40 inches, and use the C grade in preference to the others, as giving the most artistic results.

With negatives, from 3¼x4¼ up to 5x7, I use a one-third size Darlot lens, varying the stops to suit the subject, using a medium stop for heads.

For landscape and groups, I use a 6-inch Ross rapid symmetrical full opening. For 5x8, and larger, I use a Beck autograph, 11-inch focus, generally full opening, but stop down to F. 16, on an architectural subject, enlarged to 30x40 inches.

It pays to use fresh developer on each print. Use good dishes, that have flat bottoms, which will save developer. Don't stop developing too soon, as this gives mealy, weak print. Be sure the developer is acid, and use as much alcohol as acetic acid in the first wash, after pouring away the developer.

This has absolutely banished blisters for me. Wash well before fixing, as this will do more to insure permanency than washing after fixing.

PICTURE MAKING.

BY JOHN BARTLETT.

The faculty of invention—or originality, if you so prefer to call it; or. if bolder, the creative power of the painter—if not actually engendered by observation of nature, is, at least, kept alive thereby.

With great painters, the art is always the man; they live and move, and have their being in art; as Schopenhauer would say, the personality is lost in it. At all times, and everywhere, they think of it, and love it. Inferior painters are artists at set times, when in their rooms, then we get original work; nocturns in blue, and symphonies in yellow; nightmares from the depths of their own consciousness, not the world's fresh ornament.

But we have not begun, in this key, to persuade you to a belief that photography is art. Quite enough has been said by the injudicious preachers of the doctrine to make the subject wearisome to the flesh, and of no profit to the spirit, of any common-sense photographer. What we shall try to do is to show that pleasing pictures can be taken directly from nature; or, in the humbler sense of the term, invented, if we habitually cultivate the powers of observation.

Photography, then, whether it be art or not, will, like painting, make us intensely interested in what is going on around us.

> "Wings shall we have, and as far as we can go
> We may find pleasure ——."

Does the thought ever occur to you, why photography, having such a scope, brings forth such poverty.

Nature is never old or stale, and is constantly creating picture after picture of exquisite beauty, upon such principles of perfect harmony that it seems certain they are made solely for our enjoyment.

Yet we have eyes, and see not; see not beauty where it lies.

The metaphysicians are right. The external world has no actual existence to the mind unless it be perceived. Unless we constantly feed on the rarities of nature's truth, we shall think we are blessed ever on the dull substance of the flesh.

Does not nature work upon constant principles. Do we not frequently see repetition of similar attitudes. Groups of cattle by the water's edge, crowds of men and women, children at their play, and even inanimate objects, flowers and trees, and rocks and clouds, seem to arrange themselves as if in obedience to some general law.

Nature does not like scattering in composition any more than art; or, rather, art pleases by massing lights and shades, because in conformity with nature.

We are tempted to account for this principle of definite arrangement occurring under similar circumstances. There is an inborn desire in all animated creation to be as comfortable under the circumstances as possible, cattle and sheep, as well as men and women—and so every one tries to get a position most convenient for the accomplishment of the object for which all have assembled. Cattle must arrange themselves in conformity with the slope of the meadow, but, at the same time, they are sure to get as easy a position as possible.

In crowds of men and women, there is always a centre towards which most are attracted, causing a co-ordination of the individuals The few that may be indifferent to the general interest are the lazy ones, and there is no danger but they will be comfortable; their pose will be very easy; they will contribute a good deal to the repose of the scene. If the centralizing force is great enough to make the individuals sacrifice personal comfort, the picture is said to have great action, and will not display many graceful lines in its composition. So comfort gives grace—but a truce to this philosophy of composition.

Why should we reduce beauty to an equation of utility or necessity? Enough it is here. Let us enjoy it. "Beauty is truth; truth, beauty—that's all we know, or need to know."

We cannot tell why the rocks and the trees, which cannot change their position, give such touches of harmony to a scene; or why the clouds, which must "wait the visitation of the winds," supplement so harmoniously the landscape below them.

Some artists are perpetually searching for the most graceful attitudes, but never find them, because they seek only for an embodiment of their own conceptions of what is beautiful and graceful, and try to mould their unplastic subjects according to the rules laid down in the canons of art.

Grace is ease; beauty, repose. The attitude of many of the figures in Michael Angelo's paintings makes them seem as if they had been photographed directly from nature. Even his sublime prophets and sibyls have that look.

Shall we tell you the story of Chantry? Perhaps you have heard it before; but it fits in here so well:

Chantry, you know, was a celebrated English sculptor. All the great men of his time were anxious to have him perpetuate them in marble. Now, one of these great ones—despite his bust, I have forgotten his name—came to the sculptor's studio. Full of the desire to produce something grand, Chantry made a number of casts from his model in a variety of attitudes, but none of them pleased him. They seemed so constrained, so unnatural. At last the model, becoming tired, leaned upon a pillar in the room in an attitude so graceful and easeful that the artist cried out in delight, and besought him to stand just as he was until he secured the pose.

Casts of all these figures remain. Chantry did not destroy the ideals; he was great enough to acknowledge his debt to nature.

What shall we learn from this story? Shall the artist or photographer weary his models until exhausted nature rebels, and takes her easeful pose? Yes, provided the models are of that generous disposition to stand the treatment for art's dear sake. If not, it is better to begin at once to secure graceful postures by making the subjects comfortable.

The ability to select from nature just what is fitted to the purposes of art is a greater talent than the power to combine and contrast elements derived from other pictures, or from our own fancy, even though one produces something new.

Something, old in nature, which has escaped ordinary observation, is always the discovery of genius. How long had nature pictured barns and cottages, and other common-place things, in the wonderful effect of light and shade which Rembrandt first revealed to art.

That mind must be fallow where no germs of picture-making power spring up by the cultivation derived from the study of paintings.

Painters give us spectacles to see nature through. What if the glasses do distort sometimes, we should be grateful for the removal of the cataract from our eyes, which were blind.

Story-telling in pictures is easy, if one has a definite idea of what he is going to tell. Possessed of the idea, the subject will grow of itself, and will need no definite building up.

The great trouble seems to be the possession of the notion that a picture is to be constructed, like a chair or a table, or something else in which beauty is subservient to stability. The picture so made is a puppet show, not a work of art.

We do not mean that one should despise instruction, but one should not be a slave to method.

The true laws of art are the laws of nature, and nature may have a balance of lines, and may have a love for the pyramidal structure in her composition; but the idea must be dominant in the mind, and not the method. If the idea is right, the method must be right, for the idea cannot be expressed in any other terms.

Dr. Johnson, you know, was anything but sentimental—pre-eminently judicious, rather inclined to lay down the law—yet he once said to Miss Burney: "There are three distinct kinds of judges upon all new authors or productions. The first are those who know no rules, but pronounce entirely from their natural taste or feelings; the second are those who know and judge according to rules; the third are those who know, but are above the rules. These last are those you should wish to satisfy, next to them rate the natural judges, but ever despise those whose opinions are formed by rules."

It is well, therefore, to know the rules, but it is better not to try to construct pictures according to rule.

The man who starts out with the intention of making a pyramid of his picture will assuredly make one; but he will as surely find his idea entombed therein, and around it the desert. But if the idea animate the picture, unity will be the governing principle, and beauty will be evolved from it by a natural process.

There will be balance of lines, because there must be harmony, and even the pyramid may be there; but it will be an altar to truth, not a place for sacrifice of beauty.

The Photographic Society of Philadelphia.

A stated meeting of the Society was held Wednesday evening, March 2d, with the President, Mr. Frederic Graff, in the chair.

Attention was called by the Secretary to circulars which had been received, in regard to an exhibition to be held in March by the Pittsburgh Amateur Photographers Society.

The Committee on Membership reported the election, as active members, of Dr. Charles L. Mitchell and Messrs. C. Howard Clark, Jr., Richard W. Kear, Meredith Bailey, John Carbutt, Jr., and Seldon L. Walkley.

The Executive Committee reported that they had considered the matter of permitting members to use the room for private lantern exhibitions. They preferred that the question of allowing the privilege be decided by the Society as a body, and in the event of a favorable decision, they had prepared, and would submit to the Society for approval, a series of rules, under which, in their opinion, the privilege should be granted.

After a short discussion, it was decided to grant the privilege, and the following resolutions, embodying the rules suggested by the Executive Committee, were passed:

Resolved, That the Executive Committee be, and are hereby, authorized to allow any member in good standing to have the use of the room and Society's lantern for the purposes of exhibition in the room, under the superintendence of an expert approved by the committee.

Provided: The member applying for the use of the room shall pay all expenses, and furnish the gas and lime used.

Provided: No member shall be prevented from being present at such exhibition; but notice of the fact of such private exhibition shall be posted prominently in the room for three days prior to the exhibition.

Provided: The same member shall not be accorded such permission more than once in any one month, nor shall more than two exhibitions be given in any one week.

The gatherings shall be solely for the purpose of lantern exhibitions, and no refreshments of any sort whatever shall be served in the room.

The paper for the evening, written by Mr. Charles R. Pancoast, was read, in his absence, by Mr. John G. Bullock, the subject being "Photographing at Niagara Falls," illustrated by about twenty-five lantern slides taken from negatives made by Mr. Pancoast.

Mr. Frederick E. Ives made a short address on the subject of Photographing by the Aid of the Phosphorescent Tablet. He said:

"Photography, by the aid of the Phosphorescent Tablet, is not a new discovery, having been known since 1880. It is not even a practically useful method, and is interesting only from a scientific point of view. My own experiments with the method having resulted in the discovery of certain facts not previously known, I have been persuaded to show the results, and make some remarks concerning them.

"The facts, already well known, are that Balmain's phosphorescent paint, which probably consists chiefly of sulphide of calcium, in a suitable vehicle, becomes luminous when exposed to light, and the light emitted acts powerfully on photographic sensitive plates; also, that heat releases phosphorescent energy. Solarized phosphorescent tablets have been used as a source of light for contact printing in the dark-room, and negatives have been made by exposing the tablet, in a camera, and then making a contact exposure on a photographic sensitive plate, in the dark-room. Such a photograph I now show. It has a somewhat granular appearance, due to the coarseness of the particle of sulphide ot calcium, and, although the lines are partly sharp, they appear surrounded by a sort of halo. The editor of the *British Journal of Photography*, in a recent editorial, advanced the theory that this effect was due to a spreading of the phosphorescence, and that it would be impossible to obtain a sharp camera photograph by the aid of the phosphorescent tablet. My belief is that the phosphorescence does not spread, and that the effect is due merely to the fact that the luminnosity of the phosphorescent coating extends to considerable depth, and the light from the lower part of the layer acts diffusely, because it is radiated from a point at some distance from the surface of the photographic sensitive plate. To test this, I exposed a tablet in the sunlight until fully solarized, then removed it to the dark-room, and placed it in contact with another tablet, under pressure. It was impossible to discover any communication of phosphorescence by contact, and, if any occurs, it is insignificant. I also observed that prints and camera impressions, on my tablets, appear perfectly sharp to the eye, and found that they could be reproduced sharply by photographing in the camera. I, therefore, conclude that it is possible to make sharp camera photographs by the aid of the phosphorescent tablet, but that the method has no value, because it is always easier and better to make photographs in the usual way.

"It has been suggested that the tablet might offer some advantage in the reproduction of colored objects. It is true that the color sensitiveness is not the same as that of silver-bromide, but the difference has been found to be altogether in favor of the silver-bromide.

"The second known fact that I mentioned, is that heat releases (exhausts) phosphorescence. It does not appear to have occurred to any one that this might be made a means of producing camera pictures by the action of the heat, until I discovered that the obscure heat rays of the lime light spectrum produced a strong impression on a solarized phosphorescent tablet. I succeeded in producing heat pictures of objects under certain conditions, which are described in a communication to the Franklin Institute, and published in the Institute Journal for this month."

Mr. Ives showed on the screen several photographs, among which was one, showing some buildings, made by the use of a phosphorescent tablet in the camera, and another in which a metalic object had been photographed by the action of reflected heat rays on the tablet in the camera.

Mr. Graff showed a photograph which had been presented by Mr. Samuel L. Smedley, City Surveyor. It represented an excavation made in constructing the tunnel on the line of the Schuylkill River East Side R. R., at Twenty-fifth street, near Spring Garden. On the rocks shown in the picture, two very distinct profiles of human faces could plainly be seen. Unfortunately, they were not discovered in the photograph until after the excavations had been filled in.

Mr. Rosengarten showed an interesting and valuable illustrated work, on "The Percheron Horse," by Mr. Walters, of Baltimore. The illustrations were reproductions from photographs of celebrated horses of this breed, made by the Messrs. Schreiber, of this city.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

◆

Captain Abney has not a great appreciation of the modern orthochromatic plate for landscape. He thinks they may be useful in taking white clouds on a blue sky and sunsets, but for ordinary work they would be valueless.

Photographing at Niagara Falls.

Read before the Photographic Society of Philadelphia, by Charles R. Pancoast, March 2, 1887.

It may seem the height of presumption, on my part, to grapple with so vast a subject as Niagara; but while in Buffalo last summer, I was enabled to make frequent photographic trips to the falls, and, therefore, trust that a few words will not prove uninteresting. For the benefit of those who may contemplate a trip in that direction, I will endeavor, briefly, to describe some of the most accessible and interesting views to be obtained.

Since the opening of the State Reservation, and the consequent demolition of the unsightly mills and buildings that formerly marred the beauty and grandeur of the place, many views, hitherto inaccessible, have been opened up. Primitive simplicity, unaided by art, is now one of the great features of Niagara, and one thoroughly appreciated by the lovers of the picturesque. Another feature of the Reservation being the almost entire freedom from "fees," and the annoying solicitations of hackmen and guides.

Those familiar with the geography of the Niagara River are aware that the falls face the north and the north-east, consequently a large proportion of the views must, of necessity, be made against the light. This fact, of itself, renders the photographing of the swiftly-rushing waters an unusually difficult task. The best time of the year is undoubtedly in the month of June, when the early foliage is at its prime, and before the excursion season has fairly opened. I speak from experience on this point, having suffered from the annoyance of unwelcome "figure compositions" suddenly presenting themselves in the field of view.

At that season, the sun being in its most northerly position, the light upon the falls is at its best. Ordinarily, a bright sun is best adapted for general work, although it must be remembered that, in views of the rapids, especially from the American side, an overcast day will give much the softest results. This, I may say, is true of any view in which there are harsh contrasts.

Two great enemies of the photographer

at Niagara, are wind and spray. While the former holds sway, it is useless to attempt any work. The latter is by no means a constant quantity, and successful views of the falls proper can only be made when it is at its minimum. Attempts to render what appear to be fine spray effects, result only in hopeless fog. My experience has been, that it is far preferable for the casual visitor, having but a limited time at his disposal, to eschew the difficult subjects, unless under the most favorable circumstances, and confine operations to views readily attainable, and such "bits" of picturesque scenery as may strike his fancy.

Photographing the falls from below is attended with so much risk and discomfort, that even the most ardent amateur may be excused from making the attempt; especially is this the case, when the results obtained, even under the most favorable circumstances, are not commensurate with the time and labor expended. I have been informed by some of the resident photographers that, during the year, there are indeed very few days on which really good pictures of the falls from below can be made. It is useless to attempt photography at Niagara without an exposing shutter capable of giving exposures from 1-10 to 1-100 of a second. My own experience being that with very rapid plates the best results were obtained by using as large an aperture as was consistent with fair marginal definition, and as rapid an exposure as any shutter would produce. I am convinced that a larger amount of detail is obtained in this way than where a slower exposure is made with a smaller stop. The extreme darkness of the foliage about the falls is such as to render the developing of very much detail almost an impossibility, especially so when contrasted with the brightly illuminated water. Plates showing a decided tendency to "softness", will, therefore, give better results. In order to proceed systematically, the photographer should commence in Prospect Park, as early in the morning as possible, and gradually work around over Goat and Luna Islands, finishing with the Sister Islands about noon.

Views from the Canadian side are best made in the afternoon. I may remark here that neither the American nor Canadian customs officers stationed at the new suspension bridge, make any objections to photographic apparatus, unless, however, the enthusiastic operator is sacrilegiously inclined, and desires to profane the Dominion Sabbath, then the "blue-nose" official will doubtless interfere. The virtuous Canadians evidently draw the line at photographing on Sunday. On clear days, when the falls are comparatively free from spray, some very fine effects are to be had from a point near where fomerly stood Table-rock. From a point on Clark's Island, about three-quarters of a mile above the Horseshoe Falls, a fine view of the Canadian rapids can be made. Late in the afternoon, when the shadows fall obliquely, the effect of the turbulent water is superb. For views of this character, it will be necessary to increase the speed of the shutter considerably, otherwise the swiftly-moving water in the foreground will be so much blurred as to spoil the general harmony of the result.

To one fond of engineering subjects, the cantilever bridge of the Michigan Central Railway will prove both pleasing and interesting. The best point from which to make it, being what is known as the "Old Maid of the Mist" landing, about half a mile above, and reached by a good road down the bluff. The walk along the bluff below the town of Niagara Falls, after passing the mills, is picturesque in the extreme, and affords some excellent subjects. I did not attempt any photographs of the Whirlpool Rapids, and, therefore, cannot say when and how the best views are to be made. From casual examination, however, I should say that the Canada side, after about 1 o'clock in the afternoon, would offer the most advantages. Having thus, in a general way, given some idea of the photographic work to be made about the falls, I must say that, in a field so rich and varied, it is impossible to establish any given route or class of subjects; let the results proclaim at once the individuality of the artist.

Buffalo offers but few inducements to

the pictorially inclined. The ruins of Fort Porter, on a high bluff overlooking the Niagara River, and those of Fort Erie, on the Canada side, immediately opposite, are subjects which, if not picturesque, are of great historic interest.

The government breakwater, at the mouth of Buffalo Creek, offers favorable opportunities for instantaneous views of the lake marine. To those who may be interested in technical points, I will say that the pictures exhibited were all made with a Ross Rapid Symmetrical lens, of 7½-inch focus, using an aperture of F. 16. The shutter used was one of my own construction. Plates by Cramer, developed with a pyro and soda developer, prepared in accordance with a formula given me by Mr. C. H. James.

About Artificial Light in Photography.

BY DR. HERMANN VOGEL,

"Photographische Notizen."

The application of artificial light to the purposes of photography, has been the theme of many discussions, both verbal and written, and not a few have endeavored to experimentally determine the best source of illumination, when the sunlight cannot be used.

Trials for the last twenty-five years have been made of the electric light magnesium and white fire. The electric light has had much attention directed to it, and is regarded in a rather favorable *light*, by reason of the facility with which it may be employed, on account of its cheapness, and the intensity of the illumination produced. Magnesium and white fire, in comparison, are much more expensive.

Photography with artificial light took an entirely new departure upon the discovery of the color sensitive plates, by which it became possible to make exposures with the ordinary yellow gas and lamp light.

Himly was the first to introduce the method of illumination with yellow artificial light, and it appeared as if the electric light would have to compete with it for the supremacy. But such result has not taken place. Even the electric light itself possessed only a confined application, being principally used where there was a lack of daylight, as, for instance, in London fog, or in St. Petersburg in the short winter days. There is no question that the want of experience in the management of the light leads to failures in its application to artistic work.

The exposures made with electric light, under the most favorable circumstances, are as good as those taken with daylight, but not better. The same may be said of the results obtained with yellow gas, or petroleum, and color sensitive plates. But, before practical application of these lights could be made, suddenly magnesium loomed up as a competitor, with results to back it that deserve the respect of the photographer.

Twenty-three years ago, when I made my first portrait with magnesium light, I used 1¼ gramme of magnesium wire, for which I paid 3 marks. This high price, the glaring contrast of the shadow side, and the disagreeable fumes, limited the application of the light to extraordinary cases.

The condition of things changed somewhat on the introduction of the gelatine dry plate. If we regard these as only six times as sensitive as wet plates, the quantity of magnesium necessary for an exposure would be reduced one-sixth, and at the above rate would amount to about fifty *pfennige* for a portrait.

Now a method of producing magnesium by electricity was found out, and at a rate of only one-tenth the cost twenty-three years ago; so that the expense of an exposure was reduced to five *pfennige*. Experiment has given a still more favorable comparison for magnesium.

The portrait taken with magnesium light illumination, by Haberlandt, which appeared in last September's *Photo Mittheilungen*, required about one-third of a gramme of magnesium, the cost of which amounts to not quite three *pfennige*, and yet the result is scarcely to be told from an exposure taken in daylight. Moreover, the application of the magnesium is so simple that it can be employed without the least trouble. No motor is used, no dynamo, no conductor, various lamps and reflectors, etc., etc., as is the case when electricity is used. A couple of pieces of wire, held in the hand and burned without a lamp, is all that is necessary.

Herr Haberlandt employed ½ m. for the light side, 1-12—1-16 m. for the shadow side. He made use of a silk paper screen —tissue paper stretched over a wooden frame—about ¾ m. square, placed at 75 c. m. distance from the sitter, the object of which was to diffuse the light, and to soften the direct rays. The effect was found to be better when blue tissue paper was used to shield the light.

Herr Haberlandt observed that very slight changes in the position of the screen produced very considerable changes in the effect of the light; so that some experience is necessary in the application of the magnesium light. Preliminary experiments must be made before the desired effect can be produced.

The example set by Herr Haberlandt has been followed by others. In many of the North German galleries, magnesium has been called into service to supplement the dull light of the days before Christmas. The results are very striking, obtained on exposures of interiors.

Selle & Kuntze, in Potsdam, obtained excellent results in the photographing of the king's vault, in their city. They burned two metres of wire right and left of the camera, so that the direct light did not enter the lens, making use of a Steinheil aplanatic objective, second smallest stop. Time of exposures, only one minute. How extraordinarily different the quantity of light necessary,in any particular case, for an exposure, may be learned from the experience of Herr Haberlandt, who was obliged to make use of three magnesium lamps, burning for an hour and a quarter. The interior was one of those old-fashioned banqueting halls, decorated with dark wood panels and brown-colored furniture of the Renaissance style. As the cost of burning magnesium for an hour is not over a *mark*, the expenditure was richly repaid in the results.

As the latest experience in this field, may be mentioned the results of Mr. Kuntze in photographing a corpse at evening. During the exposure, one-and-a-half metres of magnesium were burned, at a distance of half metre from the body; the burning wire was held freely in the hand, the operator walking around the subject to illuminate the shadow side. The result was very satisfactory. The objective used was Voigtlander's Euryscope, No. 3, third stop. Special care must be observed, that the direct rays of the light do not enter the lens.

It is highly probable that these results mentioned will pave the way for the general application of magnesium as an artificial illumination in photography.

Photographic Portraiture.

Communication to the Edinburgh Photographic Society.

As the painter must ever be beholden to his brush and other mechanical aids to the expression of his genius, so must the photographer make intelligent use of his appliances, in order to the production of his best efforts. As portraits may be painted or produced by other means than those usually employed, so may photographic portraits be produced without a studio, but to the professional man the studio is as necessary in the one case as in the other. Amid all changes, certain requirements remain, and the studio is one of these. Let me say a word about it. All manner of construction and situation is to be found, and, probably, advocates for every variety we can think of; but while many are compelled to do with less than they could wish, or a different situation than they could desire, a very general inclination will be found in favor of a north light. My own preference is decidedly towards a north or northeast aspect. My studio is seven feet six inches in height at the side, rising from that at an angle of forty-five degrees. This I consider a good serviceable height. It will be found that a high roof lessens the effective control of the light by the operator, without which just so much more difficult and uncertain will it be to obtain the most satisfactory results. The construction of a studio, apart from its relation to the principal light, has not, I think, very much effect one way or other on the work produced in it, unless it is of a most awkward and inconvenient description. It must be a very faulty studio indeed in which good work cannot be done, provided there be on the part of the operator the necessary knowledge of the requirements of any particular case, and how to meet them by skilful adjustments, and what I might call artistic tact.

In the matter of lighting the subject, one man's work is apt to partake of a certain uniformity of character, arising from his constantly working under the same, or nearly the same, conditions. A very common error many operators fall into is to place every sitter on the same spot, and endeavor to direct the light they judge most suitable on that spot, instead of trying the effect of different points, where they may be placed in relation to the main light; in fact, bringing "the mountain" to Mahomet, instead of Mahomet to the mountain. Where the facilities for doing this are very limited, or where it cannot be done at all, there is no more to be said, and the best must be done with what is available.

Where we have to deal with strong contrasts—such as white hair and high complexion, or white and black draperies—the subject will be most effectively treated by being made to face the light; where the conditions are reversed, an opposite treatment, according to the particular demands of the case, must be resorted to. The matter can only be referred to in general terms. A skilful operator will determine what to do when the subject comes into his hands, and especially when he sees the sitter in the light which falls just about where he is to be taken.

If good lighting necessitates considerable study and knowledge of effects, posing demands no less; indeed, the art of lighting a subject may be mastered with tolerable completeness, while posing may never be thoroughly acquired, because it is less of a mechanical accomplishment. It calls for a knowledge of harmony of lines, and the effect of balancing of parts—what, in short, is described as composition, and which every one does not naturally possess. An operator may fail in this, just as painters sometimes do, who, though good colorists, are defective as draughtsmen and in the ability to conceive a good picture. We sometimes feel that photography is too literal to be artistic. From a client's point of view, its tendency is to exaggerate the imperfections, rather than the *perfections* of face and figure. Should you have a stout figure to photograph, the neck, as a rule, will appear short. To obviate this appearance in the portrait, it is best to adopt a standing pose, with the camera a little below the level of the head. If a sitting position is chosen, undue height will be given to the shoulders, and the shortness of neck will be emphasized. In treating the opposite extreme—a thin figure with sloping shoulders (not so objectionable in the gentle as in the sterner sex)—I would recommend a sitting pose, and in the case of gentlemen, especially when the head is large, a little drapery, in the form of an overcoat loosely thrown back. The head should be turned in the reverse direction from the angle at which the body is placed, which will help to give the appearance of substance and harmony to the figure, and altogether make the picture more pleasing. A little attention of this sort will improve defects in the sitter, just as easily as the want of it may produce them where they ought not to exist. As a rule, twist the figure as little as possible when the person is stout. Some people turn the head more gracefully in one direction than in another; the head seems balanced in the one case, while in the other it may be the line of the neck and shoulder forms too great an angle. Should it be necessary to take that view of the face which gives prominence to this defect, turn the figure away, and the head towards the camera.

Allow me to say a few words as to the treatment of the different features of the face.

When the forehead is high and broad, no particular attention need be paid to the view taken of it, but should it recede too much, and a side or three-quarter view of the face be wanted, let the outline blend with the background. The same treatment should be resorted to where there is an undue fulness of the upper part—of course, in children this is common, and is no defect, but when occurring in the adult, is better to be modified.

Very often one brow droops a little, or the eyelid may have the same tendency, in which case I find the best plan to avoid exaggerating this inequality, is to turn the figure to that side and the head towards the camera, keeping the droop in the shadow. Variety in noses is endless; make the lens look down at the short, and up at the long, or, rather, place them in these relations to the lens. If the outline be ungraceful, modify it by more front view. A really good or beautiful nose will be valued by its possessor, and its beauty will be best exhibited by a slight turn of the head; a broad nose is improved by the same treatment and a somewhat sharp light.

The full eye, when light, is difficult to manage, and if all other conditions are suitable, should be turned away from the light; in fact, the greater portion of the face should be in shadow. When the eye, on the contrary, is dark, avoid reflections which show with marked effect on the eyeball. A sunken eye is generally turned towards the light, but I prefer it turned away, and the light diffused with a medium, such as tissue-paper, close to the head.

With reference to the mouth, the chief want felt in the photographs is lightness and transparency of shadow, caused by the non-actinic color of the lips, as where they are brightest, and, therefore, most beautiful, the photograph gives the reverse effect. A good deal can be done on the negative to rectify this.

No man will succeed to any great extent as a portraitist, who does not exercise a constant and intelligent observation on all that affects his sitters. Details that to a careless or unobservant mind might seem too insignificant to pay any attention to, may yet be of the greatest importance. The things which go to make a pleasing portrait in any one instance, may be in themselves little matters enough: the turn of the head, one inch this way or that, the raising or the lowering of the eyes ever so little; nothing, in fact, is too small to notice. Let the eye of the operator acquire the habit of taking in his whole sitter. How different is the expression of a lady or gentleman when at their own table, or in the midst of friends on any social occasion, how vastly different from, what we see them when about to take the cap off the lens. An active consciousness enters in and deprives the picture of natural grace and beauty, as well as freedom of expression; the hands very often suffer, losing entirely their natural disposition. When you are thoroughly acquainted with you subject, you cannot be deceived by this conscious expression, and you can remind your sitters that they are not looking like themselves. Now, how can this be said or done when ten minutes previously you did not know such a face was in existence? This is the only reason I can give for so many random and missing shots in photographic portraiture. Knowledge of the subject, I say, is more or less a necessity when the highest results are aimed at. But you may say, How is this knowledge to be obtained? Are photographers to spend a week or a fortnight at their clients' houses previous to photographing them? Such is impracticable, and certainly in the case of small-sized photographs, photographers and sitters, in the majority of instances, must be strangers; but my remarks point more to larger photographs direct from life. I consider it risky, I don't say impossible, because it depends on the subject, to take a large direct picture of a person ushered into your presence and out again in the space of twenty minutes. On a first visit a *carte* might be taken, and on a second visit a cabinet, then the large one when you have gained the necessary acquaintance with your sitter's expression. It is a wonderful art, and because it is so greater wonders are expected to come out of it. The stream of its rapid advance is not confined to one channel, but it continuallo overflows and seeks with eager haste to fields and pastures new.

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"I have been often struck, when looking at a camera obscura on a dark day, with the exact resemblance the image bore to one of the finest pictures of the old masters."—RUSKIN.

Art in America.

Professor Herkomer, A. R. A., Slade Professor of Fine Art at Oxford, when lecturing at Toynbee Hall recently, gave some account of America as seen by an artist's eyes. America has begun her art career with architecture, and, in Professor Herkomer's opinion, this was right, architecture being the beginning of art. Art, however, in the sense of painting, has not yet much hold in America, according to the Professor.

"I don't mean," he said, "the possession of pictures. In America they make plenty of money; and if a man fails, he can begin again, and does not lose prestige. Art in America is not strong at present. The best work done lately in all the art schools of Europe, has been done by American students. At the same time, no painters in America, or very few of them, are happy in America. It will take a very long time for art to become a real thing there. It needs infancy; architecture, and even sculpture can be taken there, and will grow; but art, in the sense I am talking of, must grow from the beginning. Painters who go there find that art transplanted dies out, or if any keep it alive, in some sort, they have to come perpetually to Europe to nourish it. One reason for this is the want of sympathy between the American patron and the artist. Before the War had run its course, some American landscape painters, who had studied in Europe, painted huge landscapes of the Rocky Mountains and other picturesque parts of America, and they had to paint with the brush in one hand, and a revolver in the other. They worked the oracle, and sold these pictures for large sums—£5,000, and even £10,000 each. But when Americans began to travel, and found that only £500 or £1,000 was paid for big pictures here, and when the railway enabled them to see the Rocky Mountains comfortably, they felt that they had been cheated by these artists. They did not know; they had not time for knowing; so they said, 'We will wait, and not trust any artist but who has an European diploma.' A feeling of that sort is hereditary; I believe a person is born with the suspicions of his forefathers. Dealers have done a great deal of damage to America; so it comes that nine out of ten painters in America cannot get their living without teaching."

About a year ago Professor Herkomer went over there again, and stayed five months, engaged in portrait painting. He never worked for a more appreciative people. He was struck by their power of reading character. It was not respectable to read character here, but it was all the mode there. He painted a trader—now worth a million sterling—formerly a seller of apples in the street, and this man said to him, "You must get my eyes; I trade on them." He painted Jay Gould, and reading character was one secret of that man's success. Professor Herkomer attributed the enterprise, the activity, the go-a-headedness of the Americans largely to their climate, dry and electric as it was.

Remarking upon the character of American society, he described it as being as refined as in England, without snobbery. America was going to do the greatest in most things, in art amongst the number. "We have," he said, "an American painter who has brought a strange style into our Academy. By a remarkable accident, his picture was hung in a conspicuous place. It was like a fresh breeze coming into the Academy. Some were frightened at it, but most of us welcomed it." The lecturer gave some account of his experiences of portrait painting in the United States, and in conclusion spoke of the reverence of Americans for England, and of the desirability of our learning from them how they learned from us.—*British Journal of Photography.*

Preliminary Hypo Bath for Negatives.

The question as to whether there are really any advantages to be gained by the use of a preliminary bath, composed of a very weak solution of hyposulphite of soda, before developement, is one that has been occupying the attention of many of our leaders in Germany, although I fear very little notice is taken of it in England. In a recent number of the *Photographische Mittheilungen*, Herr Gaedicke publishes some very interesting experiments in this direction. A number of dry plates of the same emulsion, of a high degree of sensitiveness, were exposed, under perfectly similar conditions, under a sensitometer composed of from one to sixteen layers of paper mounted one on the other. These graduated fields were numbered one to sixteen, successively. The source of light, distance, and time were similar, so that on all the plates there was an equal influence of light. The development was now varied, in order to discover whether, by one or the other modification, a more extended picture, implying a higher sensitometer number, could be produced. First a plate was developed as usual with oxalate of iron. In order to be quite sure of bringing out the whole image, it was allowed to remain in the developer five minutes, although, according to experience, two and a half minutes would be quite long enough for the emulsion employed. The extreme legible number when, after fixing, the plate was held towards the northern sky, was No. 11. In experiment three, the plate was previously immersed in a hypo bath 1 to 2,000 for twenty seconds, then well rinsed and developed. The picture appeared in about one-seventh of the time; but with longer development, a veil was formed. The extreme visible sensitometer number was 11, the same as without a preliminary bath. Therefore, the preliminary bath produced nothing farther than the development without it—in other words, the sensitiveness of dry plates is not enhanced by a preliminary bath of hypo, but, of course, the process of development is materially expedited. Experiment No. 4 was a repetition of experiment 3, with the modification that no rinsing of the plate took place after the immersion in the preliminary bath, so that a portion of the solution still adhered to the film. But the development could not be prolonged, as too strong a veil appeared. The last legible number was 11. From this it will be seen that if such a preliminary bath is to be employed, a thoroughly good rinsing must ensue before development. In contrast to the foregoing, experiment 5 was a plate developed without a preliminary bath, and to every 10 c.cm. developing solution, one drop of bromide of potassium 1 to 10 was added. As would be imagined, the development was greatly protracted, and, after six minutes, only the number 9 was attained. The numbers 10 and 11 were not, as yet, visible; that shows that in development with bromide of potassium, the finest high-light details are not brought out. In continuing his experiments, Herr Gaedicke tried the effect of the addition of bromide of potassium to the developer, and afterwards some hypo solution. The effect was that the development was hastened, without any formation of a veil. The majority of dark chambers are not renowned for affording a superfluity of space; as in ships, every inch of space must be available, and all unnecessary utensils must be banished. Among these doomed vessels must be reckoned the preliminary bath. Herr Gaedicke made several experiments to determine the relation of hypo and bromide, and found the proportions 1 to 6 were the most favorable. He recommends the following solution:

Crystallized hyposulphite of soda	1 gramme
Bromide of potassium	6 grammes
Water	60 grammes

With this solution he took one drop to every 10 c.c.m. of developer, and developed one of the exposed plates. The image appeared in about the same time, and the whole development lasted, perhaps, half the time required with the ordinary oxalate development. The least legible number was 11. The whole image brought out, but in a much shorter time. The picture was perfectly free from veils. The addition of bromide and hypo is, therefore, undoubtedly to be preferred to the hypo bath—firstly, because the veil is avoided; secondly, the troublesome manipulation of the preliminary bath is saved; and, thirdly, because space is saved in the dark room. But besides being an accelerator of the development, this addition possesses a still greater and more important advantage—*i. e.*, the character it imparts to the negative. When we develop a negative in the ordinary manner, the strongest lights first make their appearance—in a portrait the linen and the flesh, and, lastly, the deeper shadows, such as the marks in black clothing. The development of the latter may last so long that, in the meantime, the lights which first made their appearance become so thick that, in the prints, we find no modulation in the flesh, which appears as a white uniform mass, without any fine details. By the addition of the solution given, the entire surface develops itself at once; that is to say, the details in the deepest shadows appear almost simultaneously with the strongest lights, only that the shadows soon cease to develop farther. The picture looks at first quite weak, but this is soon altered. The high lights refuse to develope farther, and the dark parts continue to strengthen until sufficient density is attained. As a means of better controlling the process of development, this simple arrangement should not be wanting in any photographic studio, and should be used with every development when there is no reason to expect an over-exposure. For the development of instantaneous photographs, this addition is also to be recommended.

W. S. WOODBURY, *Photographic News.*

Amateur Enlarging on a Small Scale.

BY J. TRAILL TAYLOR.

Read at the Photographic Conference.

The problem of a simple and easy mode of enlarging for amateurs, as regards the lighting department of the operation, is still open to receive more attention.

I am the fortunate possessor of several oil lamps, whose fine Greek names do not sufficiently counterbalance the trouble in trimming the wicks (which, in some instances, are many), the great heat, and the unpleasant smell. Could an enlarging lantern be lighted with common gas, then, indeed, would all the trouble cease; but carburetted hydrogen gas as supplied from the Company's mains is frequently deficient in illuminating qualities in a lamentable degree.

It is, however, well known to all of us that house gas may have its luminousness greatly intensified by mixing with it the vapor of some one or other of the numerous hydrocarbons. This subject has been brought before the world at various intervals during thirty years or more, and a greater or less degree of success has attended individual instances of the application. It is this system of illumination which I have thought might fittingly be impressed into the service of the photographer, who, without having the mess with charred wicks and oil every time he wishes a light, might desire his appliances reduced to a gas burner, and the whole preparation reduced to connecting a rubber pipe with the nearest gas bracket.

Of the various systems employed for more thoroughly carburetting gas, that which I bring before your notice is one of the Albo-carbon *genus.* I purchasad it at one of the London shops, for 8s. 6d., and having had it in use for some time can speak of it very favorably. Its principle consists in a piece of metal being placed above the gas flame, and which, thus becoming heated, conducts the heat to a chamber behind, which contains a hydrocarbòn that vaporises a temperature of 150 or more.

The arrangement is such that either the gas in its primitive state, or after it has been enriched to saturation, may be emitted at the jet, and, without having had recourse to photometry to determine the advantage, it appears to me that the intensity of the light is increased fourfold.

But in order still further to obtain the highest advantage offered by the system, I have had this modified burner constructed, in which two flames are employed, one being about an inch behind the other, with an air-space between. This is essential to success in obtaining the best effect.

[The speaker then exhibited and explained the construction of the gas burner to which reference had been made. By means of a socket which had a thread similar to an ordinary gas burner, this one could be lifted in or out of the enlarging lantern immediately, and by previously warming the reservoir, so as to initiate the vaporisation of the "Albo-carbon" inside the light, assumed its energy in half a minute after being ignited. He spoke of the disadvantage of dimensions in the flames;

magnitude, he said, was not compatible compatible with the highest definition. Hence, having first secured the required brilliance, he interposed a screen or diaphragm between the lantern condensers and the flame, and as close as possible to the latter. The aperture in the diaphragm was circular, and it varied from half an inch to an inch in diameter, the smaller one giving greater sharpness to the enlargement than the other. The position of the diaphragm was such as to hide all the light save a very bright portion selected from the most luminous part of the flame. He found it also advantageous to insert immediately in front of the diaphragm a small plano-convex lens, which prevented some loss of light, by concentrating it upon the lantern condensers, at the same time that it permitted the light to be brought a little closer to them. He showed on the blackboard by what means this system could be applied to the enlarging of negatives of larger dimensions than it was possible to utilize for this purpose by the condensers of his lantern. With the larger diaphragm, the burner shown was quite applicable for projecting pictures on a screen sufficiently well lighted for a parlor lantern entertainment.]

Formulas for Developers—How Should they Read?

Read by Dr. John H. Janeway before the Society of Amateur Photographers of New York, Feb. 8, 1887.

I think that the questions we have for discussion to-night are both apt and timely, especially so when we see how flooded the literature of our art science is with the constantly increasing armies of developers. The tyro is early told by the many writers, "to choose out a good developer, and stick to it." Sound and good advice, surely. But how is he to pick it out?

It is like taking a young man into a machine-shop, and saying to him, Here are all the materials required, and all the tools necessary to work with, now go to work and build a locomotive. Does he know the difference between a wrench and a jack screw? So it is with the beginner; scores of formulas for developers are before him, but what does he know of the properties of the different ingredients? The pyro, what is it for, and how does it act upon the emulsion or the plate to bring out the latent image? The carbonates of soda and potash? He sees that some use one, some the other, and some both. If he told their action, and the requisite amount necessary to produce that action, and what is the sulphite of soda added for to the above, sometimes in "A," and sometimes in "B?" He is told that citric acid and its salts, and the bromides are restrainers. Restrainers of what? He sees that the bromides are recommended for over-exposed and under-exposed plates; but why? And so on. Even the fixing bath is a perplexity to the beginner.

But even when he has mastered, to a considerable extent, the properties of the different articles comprising the developing bath, his troubles are not at an end. The great array of unscientific, incongruous, bulky, wasteful, and happy-go-lucky developers (and a careful survey of the different published formulas will soon show that each of the above classes have one or more in its ranks) stare him in the face. From which is he to choose? If he is determined to know himself, and not take the word of another, he begins by mixing up one developer after another, according to the formula given in each case, and tries them in turn, in search of a good developer, and the one that will give him the best reward for his work; but he soon finds the shelves of his dark-room full of bottles and his pocket-book empty. Or suppose that a fair young lady amateur, not having the knowledge, time, or facilities to prosecute the above experiments, chooses, by the advice of a friend, a certain developer, which must be made up strictly in accordance with the formula. Intending to take a trip for a short stay in the country, where she hopes to make some shots at choice bits of woodland and lawn, she has the developer made up for her at the nearest drug store, never dreaming of the result in bulk. Now "A" calls for 60 ounces, "B" 46 ounces, and an equal quantity of hypo solution is required. To start, she must sling her camera in its case over one shoulder, tuck the tripod under her arm, seize two one-gallon demijohns in one hand, a demijohn of the same size and one or two hand-bags in the other. Her dismay at this bulk can easily be seen. "The impediment" of this outfit would soon tire out the most enthusiastic of amateurs.

How much better it would be, especially to the amateur, if all the formulas were given so many grains to the ounce of water. It would take but a glance to convince him, whether it was a scientific one or not, whether the proportions of its ingredients were correct and capable of producing the best and desired results. What a saving of time and money it would result in; saving in solution of many of the salts used, and especially sulphite of soda, which rapidly deteriorates, and becomes useless, or nearly so. Why then make them in that way? Why not let the formula read:

Carbonate of soda	So many grains.
Sulphite of soda	" "
Pyro	" "
Water	1 ounce.
Carbonate of potash, or soda	So many grains.
Water	1 ounce.

And then multiply each ingredient by ten or its multiple, and you will have a developer of sufficient quantity and sufficiently fresh to meet all demands; and then, if the plate makers would paste on the cover of their boxes their formula for the developer reduced to grains to the ounce, it would be of great advantage and economy to any one trying one or two plates. The developer could be made up before opening the boxes.

A careful analysis of eighteen published formulas show a great diversity in the ingredients, and

The largest amount of pyro used to the ounce of water	10	grains.
The largest amount of sulphite of soda used to the ounce of water	80	"
The largest amount of carbonate of soda used to the ounce of water	40	"
The largest amount of carbonate of potash used to the ounce of water	$21\frac{2}{10}$	"
The smallest amount of pyro used to the ounce of water	$1\frac{3}{5}$	grs.
The smallest amount of sulphite of soda used to the ounce of water	5	"
The smallest amount of carbonate of soda used to the ounce of water	$1\frac{1}{5}$	"
The smallest amount of carbonate of potash used to the ounce of water	5	"

In many of the formulas the amount of sulphite of soda was largely in excess to the quantity generally conceded to be required in proportion to the pyro, 4 of sulphite of soda to 1 pyro. But in one we have sulphite of soda, 50 grains; pyro, 6 grains. Another formula says his alkali is weak, 40 grains to the ounce of water.

The use of saturated solutions in making up the developer should, I think, be discarded, or the reason that they are uncertain, the changes of temperature and evaporation rapidily affecting them; and then the mixing of two or more saturated solutions oftentimes produces the deposition of more or less of one or both of the sales, but never in equal proportions.

I think, also, that the use of either the dry or granulated salts is also objectionable, especially the carbonates—carbonic acid is not the most stable element. In the crystal you have a fixed and determinate quantity, and they should, therefore, always be called for.

I have not referred to the part of the question whether the ounce should always be regarded as composed of 480 grains, for if the method of writing the formula in so many grains to the ounce of water be adopted, there is no further trouble to be apprehended as to whether the ounce is 437 or 480 grains. But should the term be used? I think that the quantity in grains should be given (in 437½ grains or 480 grains). This is rendered necessary from the fact that most of the articles used are sold by avoirdupois weight, 437½ grains. Another good plan would be, in directions for making up the formula, if the grain system is not adopted, would be to say: Water, to make so many ounces. One should recollect in reading the English formulas that there is a difference of 4 ounces more in the pint used by them.

OUR PICTURE.—We give our readers this month another child study. This time from the studio of Mr. A. E. Taylor, Clinton, Wis. Mr. Taylor has chosen a background in harmony with his subject, suggestive of a country scene, without being obtrusive to distract the attention from the main study.

THE *Swiss Cross.*—The very first number of the *Swiss Cross* showed that it was conceived in the right spirit; each succeeding number bears evidence of its growth and progress. The department of Photography, under the management of Miss Marquand, is in harmony with the general scheme of the magazine. The paper on "Selection of Subject" shows how photography can make one most intensely interested in all that is going on around him, and so stimulate one's observation of the beauties of nature. The thoughts are well conveyed, in clear and forcible language, and the style pleasing and attractive.

February Bargain List.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	4 00
1—Papier Mache Pedestals and Bases, good order, each	2 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
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1—Drapery	4 00
1—Drapery	6 00
1—Centennial Camera Stand, in good condition	8 00
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1—8x10 Osborne Interior, "new," light left of subject	16 00
1—Pharaoh Position Chair	20 00
1—Seavey Rock, new	4 50
1—Seavey baby shell, with background, complete	4 00
1—5x8 Eastman's Roll Holder, in good condition	15 00
1—8x10 Eastman's Roll Holder, good as new	20 00
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1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
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1—5x8 A O Co. first quality box, 4 double holders, carrying case tripod. 1 5x6 Dallmyer R R Lens, used very little, good as new	68 00
1—½ size Am. Op. Co. D. S. B. Portrait Camera, fitted with ½ size Ross Lens	45 00
1—4x5 Equipment, No. 4, Anthony's View Camera and 6 Holders	15 00
1—10x12 Am. Op. Co. double swing-back Camera	25 00

Lenses.

1—1-4 Size Darlot Gem Lens	3 00
1—Ross Symmetrical Lens, 4½ inch focus, 5x8 plate full	25 00
1—Finder	2 25
1—Prosh Shutter No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched Pair imitation Dallmeyer Lenses, per pair	12 00
1—Abendroth Lens, 5x8	18 00
1—4x4 Dalmeyer Port Lens	50 00
1—4x5 Dalmeyer View Lens	6 00
1—5x8 " "	15 00
1—Woodward Condensing Lens	10 00
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WANTED—Situation by a photographer; good printer, toner and finisher, with some experience in operating. Best reference. Address Jacob Sheidt, P. O. Box 317, Ashland, Ohio.

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Amateur Photographers

AND ALL LOVERS OF NATURE SHOULD READ

The Swiss Cross

A Monthly Magazine of the Agassiz Association.

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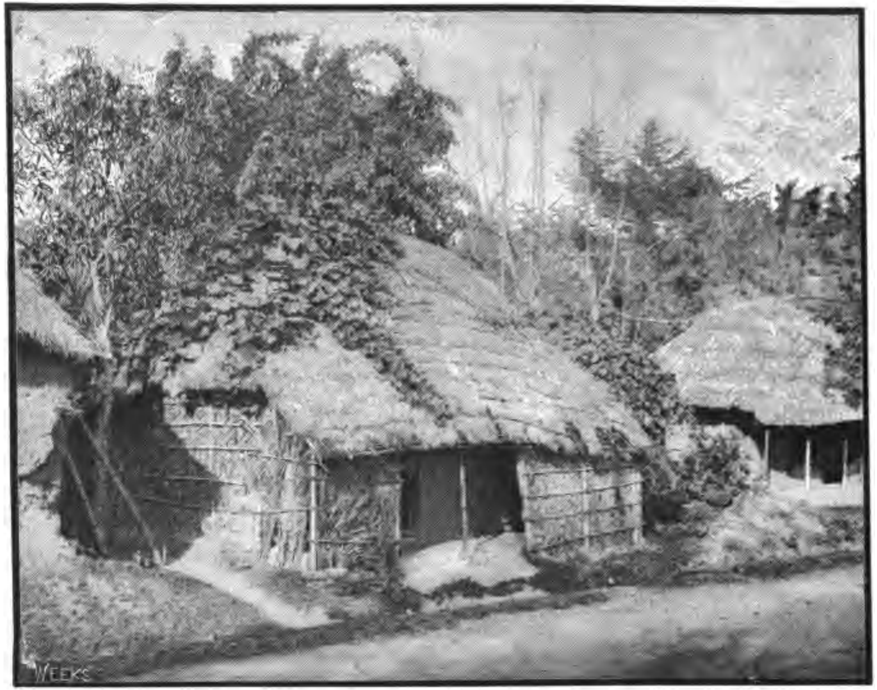

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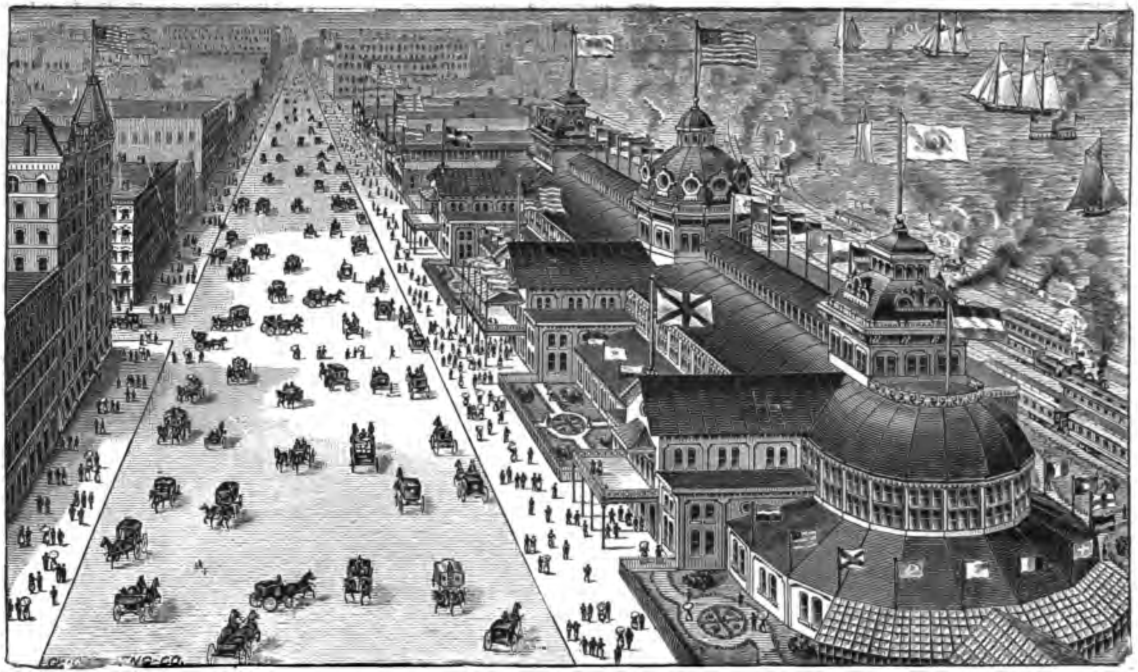

BIRD'S EYE-VIEW OF THE CHICAGO EXPOSITION BUILDING, FROM LELAND'S HOTEL.
EIGHTH ANNUAL CONVENTION OF P. A. OF A., AUGUST 9-12, 1887.

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, APRIL, 1887. NO. 4.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
—PUBLISHED MONTHLY—
$1.00 per Annum, in Advance.

Architectural Photography

BY ELLERSLIE WALLACE.

The photographing of architectural subjects in general has been rightly classed among the easier departments of our art. Given a fine building standing in a favorable position for light, and the distance at which the camera must be placed, and it will be a simple matter to treat it, photographically. It will be seen, however, that, in speaking thus, we leave ourselves a large loop-hole to creep out of; for if we take the experience of operators who have worked in other lands, where architecture is a chief feature of the average street view, we will find that the work is often beset with trials and difficulties; and, on second thought, we can recall cases in this country where the subject has presented itself in anything but a favorable manner to the camera.

This leads us to the consideration of the first point in architectural photography—namely, the approach to the building. We believe that the great majority of subjects of this kind are best taken from the street, because the spectator is supposed to look at the building from this position. But to speak practically, it will often be impossible to carry this out, owing to crowds of people and vehicles, or to the fact of there being insufficient space around the building. This cramped-in and short approach to public edifices is even worse for the camera than for the eye of a critical observer, inasmuch as the photographer will be driven to the use of wide-angle lenses, and find his perspective lines sadly forced and unnatural. In cities and towns where the streets run at right-angles, and the architectural subjects are built up close to the pavement line, it will often be quite impossible to obtain a view of the whole of even one of the facades. Sometimes an end, with a side seen in perspective along one of the streets, may be photographed; but the question may well be asked, whether the results will be worth anything; even for the common purposes of business advertisement, such prints will not be useful, just because the perspective, even if mathematically correct, will be false to the eye, thus making the view hardly recognizable. Anyone desirous of photographing the new Post-office in Philadelphia, would be met by a difficulty of this kind, while some of the handsome churches on north Broad street, having more space in front of and around them, would be easily taken.

Whether the building is to be considered as forming a part of a street view or not, will depend on the taste of the operator, and the general character of the view. Street views, as a class, will be more interesting if made instantaneously, so as to show the travel, and thus give life and animation to the picture. But when a large plate is to be used for some edifice that will arrest the attention at once, and keep it fixed, we believe that, so far from any gain to the picture, there would be positive loss if many figures were introduced; and, again, an instantaneous exposure would be very apt, indeed, to leave patches of crude, black shadow without detail. An exposure long enough to leave no doubled outlines from people, wagons, etc., but only a slight streakiness over those parts of the foreground where the street was seen, would be preferable in almost every case.

Assuming that there is space enough about the building to enable the operator to take any position he pleases, the question now meets us, whether the camera should be placed near, or at a distance—a wide-angle lens, of course, being necessary in the former case. If the camera be set far away, and a long-focus lens be used, the picture will have a very natural and realistic appearance, and at times may even be tame, like an architect's plan. A closer position, with a wide-angle lens, while (as we have already hinted) not being so truthful perhaps, might give a more pleasing result. Thus, there will be ample opportunity for the operator to show his good taste.

Full sunlight proceeding sufficiently from one side or the other to throw shadows from the prominent or jutting portions, will almost invariably be the most pleasing. It has been well said that shadow is the "glory of the picture," and it also serves to "explain the lights." It is just this light that can but seldom be had on those portions of a building facing the north; so that if an overcast day be waited for, in order to be able to direct the camera southwards, the details will often be finely rendered, but the picture, as a whole, will be apt to look tame and flat, if compared with those made in sunlight. A partial remedy for this will be to make the negative rather denser than usual, so as to give a vigorous print with strong contrasts. It would be well, before determining upon the work, to see the building soon after sunrise, or just before sunset, particularly in the early summer months, as there will often be a weak, though beautiful, side sunlight on the northern front, for a brief time, early and late in the day.

The outfit for architectural photography will be much the same as for landscape. A swing-back will always be required, and if the camera is not square, but has to be reversed on the tripod for upright views, a double-swing must be adapted, so that high church spires, etc., may be included without tilting the camera and distorting the perpendiculars. When the swing-back is used, care must be given to the focussing; as it will be necessary to raise the lens-panel, the centre of the defining power of the lens will, of course, be thrown down towards the foreground, leaving the tops of spires or towers in bad focus. The actual centre of the plate, or even a higher point, should then be chosen to focus upon, and a small stop be inserted to equalize the definition. The lenses used should always be rectilinear, single view lenses being seldom or never suited for this kind of work. The camera, also, should be carefully levelled in both directions, and mounted on a good, steady tripod.

All of our remarks, of course, apply to exteriors only. Interiors will be found to offer difficulties of another kind, which we cannot treat of here.

Expression in Portraits.

Stothard said, "There is nothing more difficult than to paint people doing nothing."

This is the daily, hourly task of the photographer, and yet he rarely seems impressed with the importance of the undertaking. In a brief forenoon, he will give you a dozen or twenty very glaring counterfeit presentments of the human face divine, and without the slightest compunction of conscience, nay, with a profound feeling of the sublimity of the occasion, write beneath his card, in beautiful scroll, "Artistic Photographer."

Did you ever stop to think that it is not sharpness or brilliancy or excellence of finish, or even softness of lighting and beauty of pose, which entitle you to this assumed title. You may have all these qualities in your work, and yet, if you have not expression, they profit you nothing for entering the kingdom of art.

How shall we attain to it? you ask. Our subjects are unpoetic, lack individuality, lack expression. How shall we call forth this quality from common-place people? We answer, this Stothard, whom we have mentioned, had the same sort of people to deal with, or he would not have given utterance to the words he did. All his work is direct from nature, not idealized.

Hogarth had even more difficult subjects to deal with than you have. In Stothard's picture of the procession of "Charity Girls," he was obliged, according to the terms of the contract, to make portraits of the foremost figures, therefore to show their faces and their individuality; yet he has overcome the difficulty with wonderful skill, and the work is really one of the most original and interesting pictures he ever painted.

One sometimes fears that the principles applicable to painting are a little too high for the range of photography. Maybe they are sometimes, but the attempt to reach the high mark is healthful exercise; and the results, though they fall short, will, nevertheless, be better than if we aim not at all.

But it is not our intention to worry you with any rules of art, or to ask you to apply them to secure beauty of expression, because we do not think all the art rules in the world will give you the faculty. We desire only to call your attention to a feature in the human face, which is, as the Bible puts it, a very "*unruly member.*" Need we say—the mouth. Beware how you try to control it. Leave it rather to its own sweet will.

Every photographer has his own way of managing his sitter, but his way is generally to make the subjects as uncomfortable as possible. They have come to know this, and are generally so accommodating that they try to get in the uneasy frame of mind the minute they enter his studio. Their mouths becoming the silent utterers of their state of mind.

Of what help are the reassuring words, spoken with solemn accent: "Assume an agreeable expression"—"Try to look pleasant." This pleasant aspect becomes but a sort of mongrel smile.

Most men are fortunate in the possession of a beard and moustache, which hide the photographically acquired, or congenitally inherited, defects; therefore, their portraits are generally more agreeable in expression than the portraits of women.

The mouth plays the most essential part in the expression. The eyes which seem to smile or look sad, in reality do nothing of the kind. The mouth is the key to interpret their feeling. The muscles which move the lips tell whether the eyes are joyous or sorrowful.

We all have seen those drawings in Bell's "Anatomy," which are so arranged that the lower half of the face can be covered with a slip, in which the mouth is a sad or laughing one, while the upper part remains the same. By this simple device, we may transform a sad and saintly madonna into a smiling nymph, in which the eyes twinkle with roguish delight. This beautiful play of the muscles of the mouth is so delicate that it at once responds to the sympathetic action of the mental condition, betrays the disposiion, and so mirrors, if uncontrolled either by the will or other exciting cause, the true character of the person.

Hence, the action, if natural, is involuntary, and any endeavor to govern it by the will, shows at once upon the face, and we have that look of determination—that "screwing up to the sticking point" expression, which is generally called the photographic look.

Expression centres in the mouth. It is the feature for the photographer to exercise his skill upon. We are not going to give any instructions how to conquer it, because we do not know how. The action of the photographer's will would be as bad as the operation of the owners.

The only thing which seems proper to do, is to take away restraint of any kind, to relieve the model from the impression that he is the chief factor in the transaction.

If some photographer would have the sense to consign his position-chairs and his inquisitorial head-rest to the lumber room, there to feed oblivion with their decay, and make his operating room, not his reception room, look something like an artist's studio, it is possible the expression of his models might improve.

We have seen very happy expressions in photographs; and on inquiring, found that they were taken without head-rests, and without ceremony. The models were left to their own free will, or rather they were not told when the operation began or ended.

Our plates are so very sensitive that we need no longer summon the attention of the sitter, or announce, with majestic mien, "the exposure is now about to begin."

If a head is properly illuminated, less time will be required with a moderate light than when unevenly lit in a strong light, because a violent lighting gives the high lights the allopathic dose, and the shadows the homeopathic.

Finally, expression is very difficult to secure; but so is everything else which is worth anything. With all thy gettings, get expression.

JOHN BARTLETT.

Modification of the Alkaline Developer for Gelatine Plates.

The alkaline developers in general use for evoking the latent image in the photographic plate, consist essentially of an alkali and an organic substance, which has the property of reducing a salt of silver. It is evident that certain properties of the developer are dependent upon the character of the alkaline body employed. It is not indifferent whether we employ potash, soda, or ammonia combinations.

As far as concerns the other component, it likewise exercises an influence, but the latitude in variation, it is not so great, inasmuch as hitherto no substance has been found which could be advantageously substituted for pyrogallic acid.

Let us consider the alkalies which are used in combination with pyro for development.

Caustic ammonia was at one time exclusively used. However, the desire arose for a body which, in solution, did not present so great instability in respect to its strength as liquor ammonia, consequently carbonate of soda was selected.* Then arose the soda developer; then the potash developer followed. Of the three mentioned, soda developer, at the present time, has the preponderance. It is energetic in its action, and in its full strength, after 2 or 3 minutes, brings forth the impression produced by the weakest action of the light. It may be on account of this rapidity of developing that the soda developer is preferred to the ferrous oxalate in developing the color sensitive plates (ortho-chromatic), which are apt to fog by the slightest increase of time used in developing.

With this energetic action, is associated a rapid communication of brown color to the fluid, which operates unfavorable upon the resulting negative. The too rapid development, as well as the browning of the developer, induced me to experiment with other alkaline reagents, in combination with pyrogallic acid. I tried carbonate of ammonia, and made up the following solution:

A.	Water	1000 g.
	Carbonate ammonia	30 g.
	Sulphite soda	70 g.

The sulphite of soda was analagous to that in the new formula for soda developers.

The pyrogallic acid I employ in the fresh state in powder, and not in solution, inasmuch as all oxydation is thus avoided, and the acid acts with its full strength. Besides, the plan is much more convenient. To every 100 ccm. of the above mixture, I add 9 g. of pyro.

In order to test the action of this developer, I exposed under the sensitometer a strip of gelatine plate which had been bathed in an alkaline eosine solution.

On developing, the following results were obtained:

1. The developer with carbonate of ammonia kept clean longer than the soda developer.
2. The developing progressed gradually.
3. The color of the silver deposit was darker than with soda.

There was a marked difference to be perceived in the employment of carbonate of ammonia and carbonate of soda in combination with pyrogallic acid.

Mixed soda and ammonia carbonate developer was now tried, and the fact was noticed, that the conserving action of the carbonate of ammonia was manifest, even when relatively minute additions were made.

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* This instability may be avoided by employing, instead of the caustic ammonia, a solution of an ammoniac salt; for example, nitrate or citrate of ammonia, which is more permanent, and which, by the addition of a strong alkali, immediately before using, liberate free ammonia.

Inasmuch as the developer with carbonate of ammonia exercises a weak reducing action, it may be added as required, in varying quantities, to the soda developer. I find the following formula effective in practice:

Soda Ammonia Developer.

Water	1000 g.
Sulphite soda	80 g.
Carbonate soda	25 g.
Carbonate ammonia	5 g.
Pyrogallic acid	9 g.

The application of the carbonate of ammonia thus proving itself advantageous, induced me to extend my investigation to other alkaline reagents. I directed my attention to bi-borate of soda, or, as it is commonly known, borax, whose alkaline reaction is well established. But with this salt, I obtained only negative results, inasmuch as the fluid, composed of a solution of borax and pyrogallic acid, did not have the slightest developing action upon the plate. The exposed plate lay perfectly white in this fluid, and even on the application of soda ammonia developer, no image was produced. It was only after all the borax had been thoroughly washed out under the tap that the development with the regular developer could be accomplished. From this it seems that the borax does not destroy the latent image, but merely retards the reducing action of the alkaline pyro.

Perhaps this peculiarity might be of use; for instance, if a drop of a solution of borax be added to every 10 ccm. of developer, the image will develop with great clearness.

The next alkaline material which I employed was caustic lime. A piece of marble was heated to high heat in a perforated crucible to drive off the carbonic acid, and then placed in distilled water. To this lime water was added pyrogallic acid, and the mixture employed as a developer.

The image appeared rapidly, showed the finest details after fixing, and possessed a brown tone. The lime water would be very convenient in its application; all that would be necessary would be to add fresh water to the stock flask, and shake up the contents. The objection is, it gives a violet-brown color in combination with pyro, and makes the solution soon turbid, disturbing the progress of the development.

Gallic acid likewise gives with lime water an intense blue color.

Hydrochinon with lime water, as a developer, is very energetic. The mixture colors brown, but remains tolerably clear. If, in place of the lime water, baryta water with pyro be used, or with hydrochinon, no perceptible advantage is had, and the brown color is also present.

It follows that the alkaline earths give powerful developers with pyrogallic acid, but the fact of the production of the intensive discoloration of the fluids, and the formation, by the action of the air, of insoluble carbonates, interfere with the employment of the same in a practical manner.—DR. O. LOHSE, *Photo. Correspondenz.*

A New Intensifier for Dry Plates.

JOHN G. CASSEBAUM.

The following formula for intensifying gelatin dry plates is the result of practical investigations. It has been found to work admirably in building up a plate, being gradual in its action, energetic, and at the same time perfectly under control, so that any degree of intensity may be obtained.

It is necessary first to submit the plate to a preliminary bath, to render it slightly acid.

I have found that the following is of the proper strength:

PRELIMINARY BATH.

Nitric acid	10 drops.
Water	20 oz.
Chrome alum	1 oz.

Citric acid or acetic acid may be substituted for the nitric, in the proportion of 1 oz. to 20 of water.

The plate is removed from this bath, rinsed under the tap, and placed in the following solutions:

A.

Take 120 grs. of gallic acid,
1 oz. alcohol.

B.

Silver	30 grs.
Water	1 oz.

Of these stock solutions take 1 dr. each, and add to 1 oz. of water, flow the plate over with it until the required density is obtained. Then wash in the usual manner.

Studies.

BY W. ADCOCK.

Abstract of a paper read before the Photographic Conference.

By the title I give to this short paper, I mean detached parts of pictures, as distinct from those composites which, when joined up and employed, we, in a certain sense—not its highest—call a picture. If, in a landscape, we take foreground, middle and extreme distance, we get the elements necessary to a picture. If, of these, we take one section only, we should probably call it a view. Now if, out of the foreground, we took a large thistle and produced it separately, we might, however pictorially it was treated, very properly consider it a study.

Similar ideas apply to figure. To get a picture, we should look beyond a mere bald figure for accessories to give completition to it. In the production of a large and elaborate photograph, we can easily see how necessary it would be to study every part separately. The pose of a model, the turn of a head, the exact expression, the disposal of the hands, the folds of drapery, the position of a chair—all would be worked out, not merely by thinking of, but by producing pictorially. In this, photographers only follow in the wake of painters, who, fortunately for the world, give it their first and upward thinkings towards perfection, in the forms of studies.

We know how a painter, when thinking of a great work, first makes studies of its parts, then of its components as a whole—often more than once—before he decides how he will treat his finished work. It has been so from the earliest days of art, and the studies of the old masters are amongst the treasures of the world.

It is, I take it, safe to predict that a great master in photography, before deciding upon such a work as "Dawn and Sunset," and while the subject is incubating in his mind, would make many studies of its parts. But I aim to-day at creating an interest in one special class of studies. If we go the Kensington Museum we find studies of hands—for instance—that, from the interest attaching to them, are almost priceless. Why is this? It is because of the marvellous beauty of their drawing. It is notorious that, to the incompetent artist, hands are more difficult to draw than faces; and it is common to find, in otherwise fine pictures, a shirking of the hands. They are often an indication of something left to the imagination to say what. In new pictures remonstrance with this defect is met with the remark, "Oh, do not detract from power of the head by minor details." This interpreted means, "We don't profess to paint hands." Yet, hands give great scope to the master for brush-drawing. Can we, by camera and lens, take hands or feet, enlarge them to life-size, and produce perfect drawing? Can we not produce every line of graceful beauty found in the hand of girlhood, the muscular vigor of manhood, and the loose wrinkled skin of age, with a fidelity few capable draughtsmen would spend time in producing? Before we give a negative reply to this, I say, let us try.

Is another hint here? Would hands, and feet, and eyes, and ears, so produced, have value as copies in our schools, Board and otherwise, were drawing is now so largely taught? This seems to me a question for a professional. I hold up the hint in large letters. If worth anything, use it; if not, let it go.

Perfect drawing, to the trained eye, is ever a thing of beauty. With the lens, perfect drawing can be unquestionably obtained by taking small, and enlarging.

What to-day would be the value of a photograph of the hand of Wellington, or say the sword hand of Murat? If these things would be prized by a nation, will an exact portrayal of your hand be without interest to your grandchildren?

The power of enlarging given to amateurs by bromide paper is almost illimitable. I am a convert to this, that he who will afford a large lens with advantage, may; while he who will be content with a small rapid rectilinear (say 8 inch focus) may produce splendid work, both directly and by enlarging. And here, at the risk of telling those who know, I tell all who do not, a lens that will take a plate sharp to the edges, will enlarge that plate to any required extent. With the size I have named, I take 7½ by 5, and enlarge up to 23 by 17.

I tell you, the facility of enlarging gives you over all these things a power of making of them things of beauty. One advantage is, they are at hand, and you have not to go ten or twenty miles to find them.

Let me say there is nothing in the study which will bear careless manipulation. The diffused bluntness I have held permissible, if not advocated, in large direct work, will not serve in enlargements. A negative must be sharp all over, or those parts out of focus would, by enlargement, be terribly out of drawing; and what I am holding up for is *beauty* of drawing.

To the beginner, and to those who have a bad one, I say, get a good lens. Do not expect, for thirty shillings, an instrument as good as at some makers you would pay five pounds for. Let me not be understood as advocating these studies to the exclusion of other and more extended work—to landscape, to seascape, to figure in every phase. What I say is, that in studies, taken small and enlarged, you have a class of work second to none in interest—work that, by the very care and thought you give it, will befit you for pursuing with more intelligence than you would otherwise possess, every phase of picture of which photography is capable. Some of the studies I have suggested may be considered photography made easy. I may be asked, what scope does a turkey or a brace of hares give for showing the art side? I reply, the lines, the lights, the shadows may be harmonious, and exhibit good taste from one arrangement, but obtrusive and exhibit bad taste in another.

I enlarge by daylight, and the cost of adapting a camera to the purpose did not exceed 3s 6d. Nothing done to this camera prevents me using it for ordinary purposes.

I cannot forbear saying here, that, apart from my advocacy of hands and feet as specially worthy every one's attention, it is to the studies attainable from the human figure generally, I look for the greatest pleasure, the greatest instruction, and the easiest attainments

I think, to the amateur, there are some ruts in the photographic road. A certain make of plate may be a rut. Beach's developer is a rut; photographic time-tables are an awfully deep rut. Ladscape only, is a rut, and, yes, decidedly! everlasting figure must be another.—*Photo. News.*

Joint Exhibition of Photographic Work, held in New York.

There is no use to dispute with those who decry the claims which photography sometimes makes to a niche in the house of Art, who urge, art is creative, imaginative; photography, the dull bodying forth of prosaic facts. Simply we ask, how much of modern art can lay claim to the exalted function.

Is there no music outside the sublime harmonies of Beethoven or the subtle chords of Chopin?

We do not always want to be up in the seventh heaven of emotion; and when we are in our more terrestrial frame of mind, we can enjoy the simple rendering by photography of the drama of every day life.

Perhaps we were in the sublunar state of mind when we viewed the collection of photographs in Ortgie's Gallery, called the Joint Exhibition, at least we were delighted, and, at the risk of having our judgment called in question by the critics who gauge from the higher levels—we say we never saw a finer collection of artistic photographs.

The show was by no means as large as some others we had seen, but there were examples which out-topped our highest expectations. We shall not say another word about it just now, reserving another time the privilege of descanting upon the beauties of the individual exhibits; but we must compliment those who had in charge the arrangements, for the excellent manner in which the pictures were hung.

FIRST ANNUAL EXHIBITION OF PHOTOGRAPHS.

Awards of diplomas made by the Board of Judges, March 30th, 1887:

Frank Sutcliffe, professional photographer, Whitby, England, Nos. 372, 373, 374, 375, 376, 377, 378, one diploma for the entire exhibit. Reasons: The Board considers it the best general exhibit of technical skill, combined with artistic treatment as to composition, gradation and tone.

F. P. Cembrano, amateur, Richmond, England, one diploma for No. 314.

J. Prime Loud, amateur, Boston, Mass., one diploma for Nos. 170 and 171. Reasons for the above two awards: "The poetic treatment of landscape composition in which the fine technical skill is lost sight of in the beauty of the pictures."

George B. Wood, artist and professional, Philadelphia, Pa., one diploma for entire exhibit. Reasons: Best choice of subject, and composition.

Frederick A. Jackson, amateur, New Haven, Conn., one diploma for Nos. 257, 258, 260, 263, 265, 266, 267.

John L. Stettinius, amateur, Cincinnati, O., one diploma for Nos. 236 and 237, excepting pictures in 236, entitled "The Jumper and the Diver."

P. H. Emerson, amateur, Cheswick, England, one diploma for Nos. 320, 321, 322. Reason for above awards: "Best selection of motive and management of delicate gradations, that render the simplest subject full of interest."

John E. Dumont, amateur, Rochester, N. Y., one diploma for Nos. 268, 269, 270.

Alfred Clements, professional, Philadelphia, Pa., one diploma for Nos. 103, 104, 105, 106, 107, 108, 109, 110, 111, and 112.

Prof. Henry A. Rowland, amateur, Johns Hopkins' University, Baltimore, Md., one diploma for Nos. 278, 279, 280.

Robert S. Redfield, amateur, Philadelphia, Pa., one diploma for Nos. 82, 83, 84, 85, 86, 87.

John G. Bullock, amateur, Philadelphia, Pa., one diploma for Nos. 88, 89, 90, 91, 92, 93.

J. P. Gibson, professional, Hexham, England, one diploma for Nos. 368, 369. Reasons for above awards: Best technical excellence with much artistic feeling in choice of subject.

Horace A. Latimer, amateur, Boston, Mass., one diploma for Nos. 176 and 177. Reasons: Best photographs from paper negatives.

John L. Stettinius, amateur, Cincinnati, Ohio, one diploma for pictures, entitled "The Jumper," "The Diver," in No. 236.

Walter A. Clark, amateur, New York, one diploma for No. 274. Reasons for above awards: Best examples of instantaneous photography.

Franklin Harper, amateur, New York, one diploma for No. 6. Reasons: Best interiors.

C. W. Canfield, amateur, New York, one diploma for Nos. 300, 301, 302, 303, 304. Reasons: Best blue prints.

P. H. Mason, amateur, Peekskill, N. Y., one diploma for No. 255. Reasons: Best enlargement by an amateur.

John Bartlett, amateur, Philadelphia, Pa., one diploma for Nos. 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29.

G. West & Sons, professionals, England, one diploma for Nos. 324, 325, 326, 327, 328, 329, 330, 331, 332, 333.

J. G. Sinclair, amateur, West Hartlepool, England, one diploma for Nos. 334 to 355, inclusive. Reasons for all above awards: That they are good technically.

Mrs. Robert W. deForest, amateur, New York, one diploma for Nos. 250 and 251. Reasons: Best ladies' exhibit; especially good for choice of subject and technical excellence.

Miss Evelyn Welsh, amateur, New York, one diploma for Nos. 243, 244, 245, 246, 247.

Miss Elizabeth A. Slade, New York, one diploma for Nos. 276 and 277. Reasons: Second best ladies' exhibit, good selection of subject.

Robert S. Redfield, Philadelphia, Pa., one diploma for best set of six lantern slides.

Frederick Jackson, New Haven, Conn., one diploma for best transparency.

JAMES D. SMILLIE,
E. WOOD PERRY, JR.
C. Y. TURNER,
GEORGE C. COX,
GEORGE G. ROCKWOOD,
Judges.

Platinum Toning of Prints on Permanent Bromide Paper.

BY LEON VIDAL, PARIS.

In order to give more permanency to prints upon the permanent bromide paper, they may be toned with platinum, similarly to the manner in which albumen silver prints are toned with gold.

After developing the image with ferrous oxalate, and washing the print in water acidulated with acetic acid, it is placed in the following bath:

Bichloride of platinum.....	1 gramme.
Water....................	2 litres.
Pure hydrochloric acid.....	20–30 gr.

The prints remain in this solution from 20 to 30 minutes. They are reduced somewhat, and, therefore, it is best to print them a little strong. To determine whether the platinum bath has acted completely, cut off a small corner of the print, and put it in a twelve per cent. solution of chloride of copper. If all the silver has been replaced by the platinum, the image will remain; if not, it will almost entirely disappear.

To make the picture return, it is washed off thoroughly, and dipped in the oxalate of iron developer. It comes out clear and distinct, and even with a more brilliant tone than at first. The platinum renders the color of the image bluish-black.

After fixing and washing, the print is laid in a five per cent. solution of alum for 10 minutes, to harden the gelatine.

A variety of tones may be had with this new toning process, according to the proportion of sulphate of iron, in connection with the oxalate of potassa, used in the developer.—*Moniteur de la Photographie.*

Something About the Treatment of Chloride of Silver Gelatine Plates for Lantern Slides.

Chloride of silver gelatine plates look very different from bromide of silver plates. They are thin in appearance, and when you look through them, they have an orange color. Although they are very sensitive to daylight, they are much less sensitive to gaslight than the bromide film.

This is, in reality, an advantage, because we can develop them with more safety, not needing the objectionable ruby light, and can examine the progress of development, from time to time, at some distance from a burning gas-flame or lamp.

In diffuse daylight, the exposure is about from 1 to 6 seconds, according to the density of the negative.

If it is desired to expose in the evening, magnesium wire may be employed as a source of illumination, 25 millimeters, at a distance of 22 to 35 c. from the negative. The distance at which the magnesium is burned, is regulated by the density of the negative.

The development is accomplished with a mixture of 3 to 4 parts of oxalate solution to 1 part of iron, with some proportion of chloride of sodium or bromide of potassium solution. If to 50 ccm. of developer 5 to 10 drops of these restrainers are added, there will be an essential modification in the tone of the image. Very warm tones necessitate a longer exposure.

For cold tones, the following should be used:

Hot water (distilled).....	100 ccm.
Citrate of potassa.......	27 g.
Oxalate of potassa.......	15 g.

For warm tones:

Cold water (distilled)....	100 ccm.
Citric acid....	24 g.
Carbonate ammonia.....	8 g.

For red tones:

Cold distilled water......	100 ccm.
Citric acid..............	36 g.
Carbonate ammonia......	12 g.

The last two solutions must be made in tolerably large glasses, and the day before using, because of the violent ebullition of carbonic acid gas.

To every 3 parts of any one of the above, shortly before use, 1 part of the following iron solution is to be added:

Distilled water..........	100 ccm.
Sulphate iron	28 g.
Sulphuric acid...........	4 drops.

Keep in stock a 10 per cent. solution of chloride of sodium (salt) and bromide of potassium, and add immediately to the bath, on the slightest indication of fog, in the proportion of 4 to 8 drops to every 100 ccm. Development requires from 1 to 10 minutes. Fixing and washing are done in the usual way.

When by long development, or by some other cause, the plates become discolored, they may be readily cleared, without affecting their tone, by immersing them for a few seconds in

Water	400 ccm.
Hydrochloric acid.......	10 ccm.
Strong chloride of iron sol.	5 ccm.

After which, they are well washed. The best results are had with rather strong development.—*Liesegang's Photographisches Archiv.*

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Our Picture.

Our picture for the month is by the new Weeks' process—a new method of reproduction—the discovery of Mr. J. H. Weeks. It secures all the details of the original, and gives delicacy of tones and finish. The advantages claimed are perfection of reproduction of the original, even to the faintest and most delicate half tones; cleaness and depth of relief, and ease of manipulation by the printer, reducing the cost of press work to a minimum. The original plate by this process is an electrotype, thus saving the expense of duplication and retaining clearness and sharpness of all the lines. The picture we give is from a negative by Mr. Charles R. Pancoast, and is one of a series of most beautiful views, taken during a visit to India a few years ago. We have selected the present view as characteristic of the country. Mr. Pancoast kindly permitted us to choose a subject from his collection, but we shall confess the task was a difficult one. Amongst so many beautiful pictures, representing the wonderful tombs and temples of that strange country, we felt the difficulty of settling down upon any one particular view. Like Oliver Twist, we wanted "more"—indeed, we wanted them all. We hope at some future time to give our readers the pleasure of seeing more of Mr. Pancoast's excellent work, which combines artistic beauty with perfection of technique.

Mr. Pancoast has kindly given us a description of

A BENGALESE BUNGALOW.

Perhaps in no part of the world are the native houses so picturesque as in Bengal. Here the constructive genius of the native, combined with the many natural advantages, tend to produce buildings which, situated as they are in the midst of luxuriant tropical foliage, if not imposing, are certainly unique and pleasing to the artistic eye. Bungalow is a Hindoostani word, meaning a house or dwelling-place, and is applied indiscriminately to the abode of the lowly ryot or the palace of the prince. Bamboo is universally used as a building material, as, in fact, it enters into the construction of nearly everything in India; its uses being practically unlimited. In Northern India, however, the bungalows are built of sun-dried bricks, with thatched roofs, and are not nearly so attractive to the eye. The building illustrated forms one of a picturesque row, near the Royal Botanical Gardens at Seebpore, a suburb of Calcutta. In size, it would scarcely measure 12 by 15 feet, and certainly not over 8 feet to the peak of the roof. The Bengalese are not a tall race, and to them the limited head room is of no consequence. Interiorly, there is no attempt at furnishing; the wants of the Hindoo are few and simple, while the restricted size of his abode precludes any but the bare necessities of life. To those thirsting for technical information, I would say, that the negative was made on a Wratten & Wainwright instantaneous plate, with a Ross rapid symmetrical lens, and developed, under adverse circumstances, while at the hotel in Calcutta. C. R. PANCOAST.

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The Photographic Society of Philadelphia.

A stated meeting of the society was held Wednesday evening, April 6, 1887, with the President, Mr. Frederic Graff, in the Chair.

The Secretary read a circular received from Mr. F. C. Beach, of New York, in regard to the American Lantern Slide Interchange. Mr. John G. Bullock explained the details of the plan and offered the following resolution, which was carried.

Resolved, That the Photographic Society of Philadelphia join the American Lantern Slide Interchange, and that the committee lately in charge of the Society's Lantern Exhibition be authorized to collect and distribute the slides, and to carry out the intentions of the Interchange as suggested by the circular.

The chair announced that the committee would consist of Messrs. Galloway C. Morris, Wm. H. Rau, and Wm. A. Dripps.

The Committee on Membership reported the election of Edward A. Selliez, as an active member.

The Executive Committee reported that the new optical lantern, which they had been authorized to purchase, was ready for inspection by the members, and would be used to exhibit slides after the meeting.

The Excursion Committee reported, through Mr. Samuel Sartain, that an excursion was contemplated over the Morris and Essex Canal, starting at Easton, thence to Lake Hopatcong, where a two-days' stop would probably be made; thence to Newark, returning by rail. A week during the latter part of May was suggested for the trip, and members wishing to participate were requested to notify the committee by the next stated meeting (May 4th), or if possible, by the Conversational Meeting, April 20th.

The President appointed Dr. Ellerslie Wallace, Jr., and Messrs. Bartlett and Samuel Sartain, a committee to conduct the competition for Presentation Pictures for 1887.

The Secretary suggested that those members who had exhibited pictures in New York, send them to the room prior to the May meeting, to be placed on exhibition there during the month of May to members and their friends, and to take part in this competition. It was also urged that the members make this exhibition as large and attractive as possible so that the competition may be a more general one than has heretofore been the case.

A question in the Box asked: "Is there any method of toning positives on glass?"

It was stated in reply that lantern slides were frequently toned in solutions of sulphuret of potassium, bichloride of palladium and bichloride of platinum.

Mr. Walmsley suggested slightly underprinting the slides, bleaching with bichloride of mercury and then toning with sulphite of soda. As the latter acts as an intensifier, it is necessary to print light, or the slide will be too dense.

Mr. Bartlett wished to call the attention of the members to an intensifier for geletine plates which he had received from Mr. John G. Cassebaum. It possessed marked advantages over mercury, being gradual in its action, perfectly under control, and affording any degree of intensity required, without interfering with the printing qualities of the negative.

It is necessary to submit the negative to be strengthened to a preliminary bath to make it slightly acid. This bath consits of

Nitric acid	10 drops.
Chrome alum	1 oz.
Water	20 oz.

Citric or acetic acid may be substituted for the nitric, in the proportion of 1 oz. to 20 of water.

Stock solutions are made as follows:

A.

Gallic acid	120 gr.
Alcohol	1 oz.

B.

Silver nitrate	30 gr.
Water	1 oz.

One drachm of each of the above solutions is added to each ounce of water. The plate is put in an ordinary developing-dish and the solution poured over and gently rocked to and fro. The negative will gradually come up and may be carried to any degree of intensity. Mr. Bartlett also mentioned the investigations of Dr. Lohse, on the modifications of the alkaline developers for bromide of silver plates, as published in the *Photographisce Correspondenz.*"

Dr. Lohse, in his trial of the various alkaline earths, in connection with pyrogallic acid, found that borax (bi-borate of soda), contrary to his expectations, proved perfectly inert, producing not the slightest action upon the latent image. He further found that even the addition of soda or ammonia produced no action, while the borax remained present, the plate lay perfectly white in the dish. It was only after washing out the borax from the film, that the action began and was completed.

The borax does not neutralize the action of the light, but prevents the reducing action of alkaline pyro developer. He accordingly suggests that this salt might be of advantage as a retarder in the developer.

Mr. Bartlett, acting upon the suggestion added 1 drop of saturated solution of borax to the ounce of developer, and found that the addition acted as a clearer of the negative, without any appreciable retardation of the development.

Mr. John G. Bullock showed a chart which had been brought to the meeting by a visitor, which was a valuable aid to those who were called upon to photograph buildings or other subjects requiring to be taken from some special point, to obtain the best effect with a certain sized plate or with any special lens.

A base line was ruled across the bottom of the chart, and a perpendicular line down the centre. From the point of intersection, the angles radiated, and were ruled off on either side of the perpendicular line; every five degress being shown, red and black alternately, making it easier to trace them up. Perpendicular lines were ruled on either side of the centre, at distances corresponding to length of all plates used. The central vertical line was graduated in inches and centimetres. Horizontal lines were laid off, of a length corresponding to the longest plate each lens would cover, and at a distance from the base line corresponding to the equivalent focus of the lens. The angle line, intersecting lens line and plate line, would give the angle included and the particular size of plate, and any number of lens foci could be laid down, and the angle of any lens or size of plate could be seen at a glance.

The chart shown was 22 x 26, but angles of lenses of longer focus could be read by taking half the focus and half the length of plate.

Mr. Bullock also mentioned a peculiar circumstance in connection with a copying lens recently imported by Mr. Partridge, a member of the society. It was found that from some cause, at first unaccountable, every plate exposed with the lens was slightly fogged. New baths and developers of all kinds were tried, and camera and dark room were carefully examined for cracks where light might leak in. A critical examination of the lens revealed the fact that owing to the angle at which the inner end of the len's mount was bevelled, its extreme inner edge was struck by some of the rays of light after passing through the lens, and they were reflected in the shape of diffused light upon the plate, thus causing the fog. The difficulty was entirely overcome by use of a card board diaphram so placed as to cut off these rays before they reached the reflecting edge of the mount.

Mr. Fassitt showed some fine transparencies made on Carbutt's Ground Glass A Plates enlarged in camera from one-quarter sized plates.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

* * *

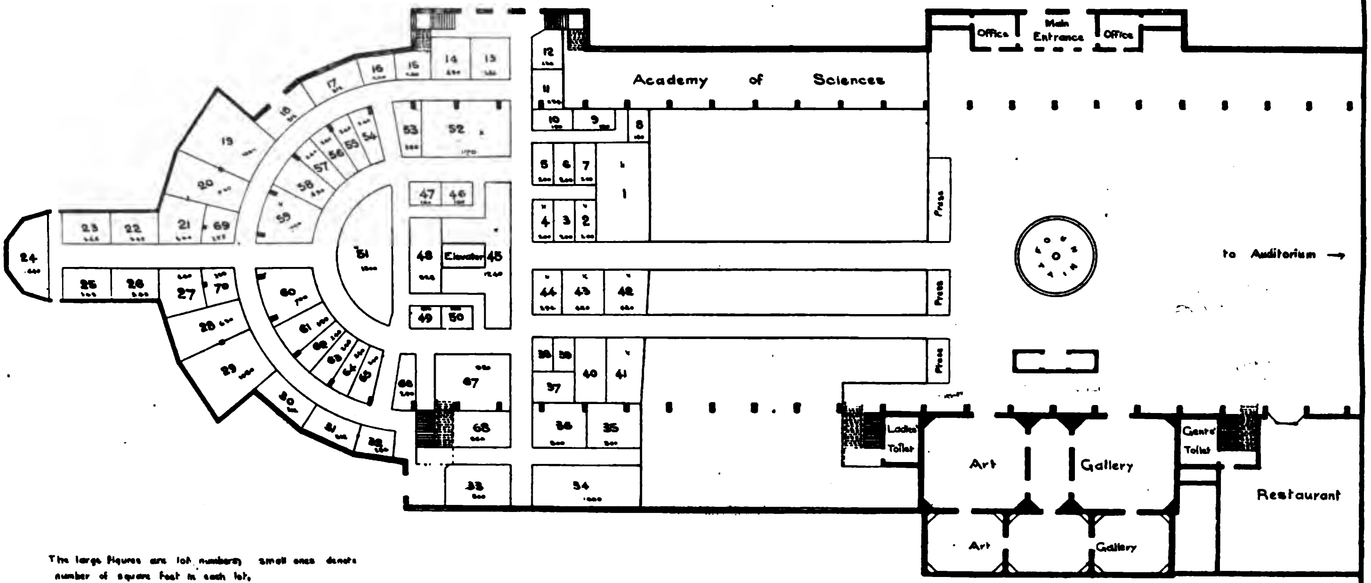
WE have received from Mr. Gentile, the Local Secretary of the P. A. of A., the diagram of the floor space to be occupied in the Chicago Exhibition by the next Convention.

The room looks ample enough to ac-

1887 EIGHTH ANNUAL CONVENTION OF THE • P. A. OF A., • 1887

Ground Plan of South Half of Exposition Building at Chicago, Ill., showing Subdivision of Floor Space.

Scale 32 Feet to an Inch.



The large figures are lot numbers; small ones denote number of square feet in each lot.

Lots marked thus: x are taken.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA, opening in Chicago, 1887, 9th to 12th August, inclusive.

commodate everybody; and as the gentlemen who have charge of the arrangements are men of energy and business qualities, there is warranty that the affair will be a success. They need, however, the cooperation of the body photographic of the country; but we have not much doubt on this point, either.

RULES AND REGULATIONS

for exhibitors in the Dealers' and Manufacturers' Department:

1. Everyone wishing to exhibit or do business in this department, must be a member of the Photographers' Association of America, and have not less than one hundred and sixty-five feet of space.

2. No one can sublet space, under any circumstance.

3. Floor and wall space will be charged at the rate of 12½ cents per foot.

4. All bills for space must be paid on or before the 9th of August.

5. It is distinctly understood, that anyone applying for space, and not occupying the same, will bind themselves to pay for same.

6. All freight and express bills must be prepaid.

7, The Art and Stock Dealers' Department will be closed each day from 9 A.M. till noon, to secure a full attendance in the auditorium.

8. No signs will be allowed in this Department larger than three feet in any dimensions.

9. Anyone not complying with above rules will not be allowed in the Exhibition.

10. All applications for space should be made as soon as possible, and not later than July 12th, to C. Gentile, Chicago, Ill., Local Secretary P. A. of A.

At the meeting of the Executive, held in Chicago, in January last, it was

Revolved, That one silver medal be awarded for the best improvement in photo. apparatus or accessories produced since the last Convention, on exhibition in the Stock Dealers' Department.

EXECUTIVE BOARD, 1887.

G. Cramer, St. Louis, Mo., President.

G. M. Carlisle, Providence, R. I., Treasurer.

H. S. Bellsmith, Buffalo, N. Y., Secretary.

J. Landy, Cincinnati, Ohio.

W. V. Ranger, Syracuse, N. Y.

C. Gentile, Chicago, Ill., Local Secretary.

WE have received from William H. Rau & Co., of this city, a number of enlargements on the Eastman bromide paper, which have all the qualities of fine steel engravings. The high-lights are clear, the shadows rich, and the intermediate tones possessed of fine gradation.

Such work as this should make this kind of print popular with those who delight in artistic pictures.

Mr. Rau gave us, in the last number of the JOURNAL, his method of manipulation by which the excellent results are secured. We may say, that many of the enlargements upon bromide paper at the recent Joint Exhibition, in New York, were made by this firm.

We are also in receipt of several lantern slides of views taken by Mr. Rau during a recent trip to Europe. For softness of tone, clearness and brilliancy, they have no equal. They are by the ordinary wet collodion process; but the toning is by a peculiar method, the result of experiment.

WE have received specimens of photographic card mounts, manufactured by the Philadelphia Card Co., the quality of which is most excellent, and the colors varied and pleasing. We notice several new shades which cannot fail to become popular.

THE *Post Express*, of Rochester, N. Y., contains an interesting account of a visit to the Grundlach Optical Works. The process of manufacture by which the good qualities of the lenses are secured is described.

SOME things in photography seem to have a definite orbit of revolution, at least they return at stated periods, like the commets, and those who direct attention to their return imagine them to be new. We have lately received inquiries about the method of working "surprise pictures," photographs in which the same person poses at the same time, on the same card, in two different attitudes.

The inception of these two-fold blazons of oneself dates back to early collodion days. They require no special apparatus to create them. A simple rod is attached by one end to the front of the camera—so that it can move in a small arc in front of the lens; to the free extremity, a black card is attached in such a manner that when the lever is moved it will cover with its image one-half of the ground glass; a mark is made upon the glass, the figure posed in attitude No. 1, and the exposure made upon the uncovered side. The second exposure is made after covering the first, and must be of exactly the same time, otherwise a line of demarcation will be visible down the plate. It requires a little care to properly adjust the positions, but otherwise the operation is easily performed.

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MANAGEMENT OF LIGHT AND SHADE.—In a picture there must be a principal light; all the others should be subordinate to it, and should become fainter towards the extremities of the canvas. The same principle holds good in shadow, but in the inverse way; that is to say, the strong values ought to lessen in approaching the centre.—COUTURE, *Conversations on Art.*

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An Unsuspected Cause for the Fading of Albumen Prints.

C. Fiedler, in No. 13 *Deutsche Photographische Zeitung*, is of opinion, that the rose coloring-matter used in tinting the albumen paper is responsible for the fading of silver prints. He is surprised that the attention of photographers has not been directed to this source, instead of hurling their invectives against poor hypo, which he thinks is often blamed unjustly.

Any one may be easily convinced of the ill-effect of the rose coloring-matter. If a photograph on the rose paper be exposed to the light for a long or short period of time, it will be found that in the portions of the paper covered by the rabbit, or mat, the color remains unchanged, while in the parts where the light acts, there will be found the ominous yellow tinge. A decomposition of the rose color takes place which in time injures the whole picture.

Fortunately the ill is not universal. Every variety of paper is not subject to it. The products of certain celebrated makers have yielded good results, with no tendency to yellow. But very many apparently excellent papers are rapid in their deterioration. Consign to oblivion all aniline colors for albumen paper. Collodion paper has the advantage as far as durability is concerned.

Mr. Fiedler has had prints both upon collodion paper and ordinary albumen paper, hanging in his studio for three years, and has noticed that those upon the collodion are as brilliant and clear as if they had been made but yesterday, while the albumen prints are pale and wan, notwithstanding the good and conscientious washing they received over the former, which were only slightly washed.

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Distortion in Large Heads.

From the same excellent "Year Book" of Dr. Eder's, we extract the following by F. Müller, of Munich:

To make large heads, lenses are often employed which are totally inadequate to the work.

The nearer a portrait double objective stands to the model, the more apparent are the faults which have their origin in the fundamental laws of optics. At short distance, the head and figure spread out. The objective is like a person who sees with one eye; while a proper proportion can be had only by double vision. At short distance, the head has a flat appearance, as viewed through a double lens.

A photograph of a head taken with a stereoscopic camera, gives us, if the angle of view is correct, a proper idea of the actual head, whilst every image viewed singly is distorted.

I invariably employ, therefore, for large heads a single lens, and prefer the fore lens of a five inch double odjective. To be sure, the head is not as sharp, but the want of sharpness is diffused and not too manifest, the eyes are not at all offended by it, and as enlarged heads are supposed to be viewed at a little distance, the effect is good.

A long exposure is necessary in consequence of the length of focus being increased, but with our very sensitive plates, now-a-days, this is not very serious. I would rather offer a little sacrifice of rapidity of exposure than not to secure the beauty and plasticity of the model. Let us have the softness which is more in accordance with nature than excessive sharpness.

◆

Permanency of the Latent Image.

Dr. Heid writes, in "Eder's Jahrbuch," 1887, "I shall mention the fact, that I lately developed bromide of silver gelatine plates which had been exposed three and a half years ago, and secured negatives as perfect, as rich in detail, and as free from fog, as I have obtained by development immediately after exposure.

The plates had not suffered any deterioration from fog around the margins, notwithstanding they were merely packed in paper, and kept in my dark-room.

It should be mentioned, that the emulsion was without ammonia or carbonate of ammonia in its constitution; from which, it would seem, that the acid emulsion yields more durable plates than an alkaline one."

Dr. Heid advises the amateur, when pressed for time to develop themselves the plates, and when they are obliged to intrust the operation to a professional, to be sure to give sufficient time to the exposures.

◆

CONCENTRATION.—A work should be all of a piece, and people and things should be there for an end. I wish to put strongly and fully all that is necessary; so much so, that I think things weakly said, had better not be said at all, because they are, in a manner, deflowered and spirited; but I profess the greatest horror of uselessness (however brilliant) and filling up. Such things can have no result but to take off the attention and weaken the whole.—MILLET TO PELLOQUET, in Sensier's *Jean Francois Millet.*

◆

BOOK NOTICES.

"The Student" is a neat magazine published at Germantown, Phila., devoted to the interest of education. The contributions are upon a variety of subjects connected with the training of teachers, and the instruction of youth. The composition is excellent and in the best English, so that the periodical is really itself an educator in the cultivation of grace of style, and purity of language.

"How to Make Photographs" is a useful little book, published by E. & H. T. Anthony, of New York. It is intended solely for beginners. The author treats the subject in a clear manner, giving the incipient photographer instruction in a straight-forward way, without distracting the attention by too much detail.

The appendix, by Dr. Elliott, of the *Photographic Bulletin*, brings the work up to the needs of the present demands of comfortable photography.

"The Microscopical Bulletin and Science News," edited by Edward Pennock, and published by James W. Queen & Co., 924 Chestnut street, Philadelphia.

This bi-monthly magazine is full of valuable matter, of interest to the investigator of minute organisms. It contains an account of the recent improvement in optical appliances and methods of research. The papers from foreign journals are well selected, and the original contributions are excellent. Altogether, the magazine is ably edited by one who evidently is a practical worker in the science, and who, therefore, knows just what is of value to fellow-microscopists.

THE *Connoisseur* is a quarterly magazine of art, published by Bailey, Banks & Biddle, Philadelphia. The March copy is a beautiful number. The illustrations are excellent artistic renderings. The frontispiece is a fine, original etching by Ferris, after Meissonier. The literary contributions are from the pens of the best writers of the day on art matters, and make very pleasant reading. All who are interested in decoration and house ornamentation will find the magazine of great service in directing their taste. We can scarcely believe that so much of excellence is offered to subscribers for 50 cents a year.

A LEGAL proceeding, affecting an important industry, is pending in Syracuse before Judge Wallace, of the United States Court, by the Eastman Dry Plate Company which obtained an injunction restraining E. & H. T. Anthony & Co., of New York, from infringing letters patent No. 358,848, granted March 8, 1887, to George Eastman and William H. Walker for apparatus for manufacturing sensitive photographic films. A motion to make the injunction perpetual will be argued in New York.

April Bargain List.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	4 00
1—Papier Mache Pedestal and Base, good order	2 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—Centennial Camera Stand, in good condition	8 00
1—Papier Mache Log, 2 feet long	2 00
1—8x10 Osborne Interior, new, light left of sitter	16 00
1—Pharaoh Position Chair	20 00
1—Seavey Rock, new	4 50
1—Seavey baby shell, with background, complete	4 00
1—5x8 Eastman's Roll Holder, in good condition	15 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x10 Seavey Interior Ground, new	21 00
1—8x8 Seavey Ground, new	15 00
1—8x8 Seavey Sea Shore Ground, new	13 00
1—8x8 Seavey Ground, new	15 00

Camera Boxes.

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—5x8 A O Co. first quality box, 4 double holders, carrying case tripod with 1 5x6 Dallmyer R R Lens, used very little, good as new	68 00
1—4x5 Equipment, No. 4, Anthony's View Camera and 6 Holders	12 00

Lenses.

1—1-4 Size Darlot Gem Lens	3 00
1—Ross Symmetrical Lens, 4½ inch focus, 5x8 plate full	25 00
1—Finder	2 25
1—Prosh Shutter No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched Pair imitation Dallmeyer Lenses, per pair	12 00
1—Abendroth Lens, 5x8	18 00
1—4x4 Dalmeyer Port Lens	50 00
1—4x5 Dalmeyer View Lens	6 00
1—5x8 " "	15 00
1—Woodward Condensing Lens	10 00
1—4x4 Darlot Globe Lens	25 00
1—No. 5 A 4x4 Voigtlander Portrait Lens	45 00

PATENT FOR SALE. THE ADAMSON CO. Patent Solicitors, Muncie, Ind.

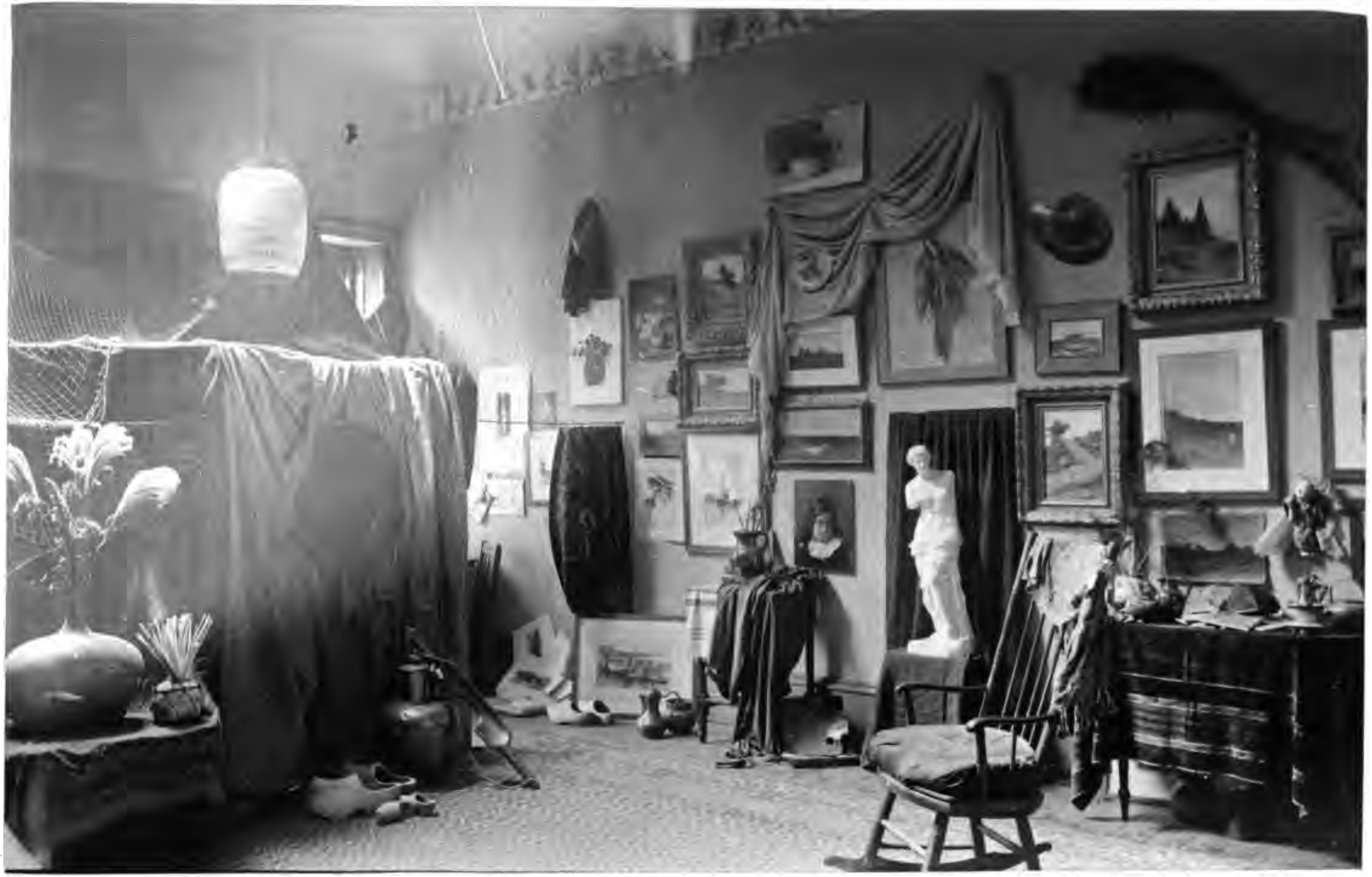
WANTED.—Situation as first-class Printer; can operate, if necessary; good wages required; good reference. Address J. B. Holyer, No. 2½ Chamberlain St., Rochester, N. Y.

WANTED—Position in a first-class Gallery as retoucher or printer; best reference, Address L. Wendenburg, College Hill. Easton, Pa.

WANTED—Situation by a photographer; good printer, toner and finisher, with some experience in operating. Best reference. Address Jacob Sheidt, P. O. Box 317, Ashland, Ohio.

Superior Mammoth Voitlander Tube, the property of a retired photographer, will be sold low. Apply at the Husted Studio, Ridge Ave. and Wallace St.

WANTED—By a young man of several years experience, a position as Printer and Toner, can also retouch and make himself generally useful in operating or dark room. Address A. H. Blencowe, Lynchburg, Va.



Negative by H. Parker Rolfe, Philadelphia.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, JUNE, 1887. NO. 6.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

—PUBLISHED MONTHLY—

$1.00 per Annum, in Advance.

Intensifying Gelatine Plates with Gallic Acid and Nitrate of Silver.

BY ELLERSLIE WALLACE.

Since the last issue of this JOURNAL, we have been busily experimenting with gallic acid and nitrate of silver as an intensifier for gelatine negatives. We can not but regret that so high an authority as the editor of the *British Journal of Photography* condemns this process, which we believe to be a very simple and useful one; and which only needs to be a little better known, to be largely used. Let it be distinctly understood, however, that when we thus speak in praise of a process for intensifying, we do not by any means counsel the systematic use of an intensifier; on the contrary, we hold that negatives should always receive their proper printing density from the first development if possible. This has been an axiom in photography from the earliest days, but experienced operators, who know the difficulty of always securing this density, will be the very ones to welcome any process by which the thin, poor plate can be quickly and safely transformed into a fair printing negative.

The gallic acid and silver intensifier is intended only for plates that have been *thoroughly fixed and thoroughly washed.* Any one familiar with photography before the days of gelatine will remember what a ticklish matter it was to apply any silver intensifier to the film after hyposulphite of soda had been used for fixing; indeed many operators wisely discarded hypo entirely, in favor of cyanide of potassium, the removal of which from the film was a far easier matter. This principle is, if possible, still more true in regard to gelatine plates; so that as we are debarred from the use of cyanide, the necessity for thorough elimination of the hypo is a *sine qua non.*

We may here say that Mr. Cassebaum, to whom belongs the credit of having first called attention to the process, is in the habit of washing his plates for more than two hours in a regular wash-box, and drying them *before intensification.* We heartily approve of this, and could quote instances from other departments of photographic practice where the drying of the film before the application of the intensifier was considered an important point. The question might now be raised as to the necessity for any treatment of the plate preliminary to the use of the gallo-nitrate. We could at once answer this by referring to Mr. Cassebaum's regular gallery practice, where the acidifying bath is always employed, as well as to this singular fact in photographic chemistry, that even when certain substances have been so perfectly removed from the film that no chemical test betrays their presence, still the film will remain so altered by their having once been present there that it will fog or otherwise behave badly during the after-treatment. Hence the necessity for a preliminary bath, and the chrome alum and nitric acid as recommended by Mr. Cassebaum is well chosen for the purpose. At the present writing, we are experimenting with another solution which may eventually take the place of the alum bath, but we can not at all agree with the editor of the *British Journal* when he says that *the preliminary bath as* *at present recommended, and the absence of restrainer in the intensifying solution, entirely destroy any possible advantages derivable from the Philadelphia formula.* It is, on the contrary, just these two identical points that make the process a good and safe one to work. The presence of acids in the intensifier would slow the whole process of deposition, without ensuring freedom from stain or fog, while the preliminary application of the acid, weak as it is (10-20 drops to 20 ounces of water), has the most beneficial effect. Indeed Mr. Cassebaum informed us that if any one objected to the film being much hardened by the chrome alum, this latter might be omitted entirely, the acid being the principal thing.

We shall keep our readers advised of our future experiments, and before referring them to the following letter from Mr. Cassebaum, will say that after consultation with more than one highly skilled operator, we are satisfied that this gallo-nitrate intensifing will prove in every respect a useful substitute for mercury. To those attempting it for the first time let us say that a good quality of gallic acid should be used, and that it will be well to expose the 30 grain silver solution to the light until no more black deposit settles to the bottom. The clear solution should then be filtered off. The formula will be found in full on page 89 of our last issue, but instead of 120 grains of gallic acid to the ounce of alcohol, 80 grains should be taken. We hope that our esteemed colleague of the *British Journal* will give the process another trial.

PHILADELPHIA, May 17, 1887.

DR. E. WALLACE :

Dear Sir:—Having expressed to you my intention of trying the addition of pyrogallic acid to the gallic acid intensifier, I made the experiment to-day, taking 120 grains of gallic acid and 20 grains of pyro to 1½ ounces of alcohol; 1 drachm of this to 1 drachm of the silver solution (30 grains to the ounce of water) and 3 ounces of water. Not having added any acid, I expected the mixed solution to turn to a dirty brown muddle very soon, but found that the gallic acid exercised a decidedly retarding influence, the reduction taking place very gradually indeed, and the solution remained clear for nearly an hour, a very gradual reduction taking place, forming a slight deposit on the sides of the glass vessel containing the mixture.

I cannot say that I have noticed any particular advantage in the addition of pyro, nor any disadvantage.

In reference to the article you intend to write, on the gallic acid intensifier, I would suggest the advising of your readers, to reapply the chrome alum and acid solution after the negative has been intensified and washed sufficiently to remove the greasy appearance (due to the alcohol). I find that after an immersion for a short time only, the staining of the film disappears almost entirely, leaving the shadows and clear margins very bright.

Should a slight red stain occur during intensification, from careless washing after fixing, the above treatment and then rinsing off the plate and placing it in the hypo bath again, will cause the red stain to disappear in a shorter or longer time, according to the intensity of the stain.

In place of the nitric acid and alum solution, water acidulated with sulphurous acid or sulphuric acid and sulphite of soda may be substituted. I prefer the alum and nitric acid solution.

Respectfully yours,

JNO. G. CASSEBAUM.

The Origin and Technology of Photographic Chemicals.

FRANK H. ROSENGARTEN.

Second Paper.

In our last paper, we spoke of the keystone of photography—nitrate of silver. Now come the next, and equally as important, factors, the haloids—bromine, iodine, and chlorine—without which our work would be impossible. Of these, bromine plays the most important role, although the others are at times essential.

In producing an image on a plate or paper by the use of silver, this metal must be in the form of a salt which is readily attacked by light, or rather by the actinic rays of light. This action is imperfect if natural light be transmitted through yellow or red glass, owing to the property such glass possesses of retarding or shutting off entirely the actinic or chemical rays. After much experimenting, first with chloride of silver, then with iodide, and last with bromide of silver, the great strides of photographic progress have brought the art to the wonderful stage of simplicity for workers by the marvelous properties this mysterious element has. The old-fashioned Daguerreotype was formed with iodide of silver, but the process was a difficult and an expensive one, and has been totally abandoned in favor of the more recent bromide plates and paper.

As so often happens in the technical production of useful chemicals, bromine is obtained from a liquid which formerly was considered a waste product and a nuisance. In making table salt, saline water is pumped from deep wells, evaporated to a very small bulk, and the crystals of salt are dipped out. Salt having the peculiar property of being as difficultly soluble in saturated hot solution as in cold, while the bromides of magnesia, etc., are more soluble, fresh portions of saline water are added, and the evaporation continued until a period arrives when the salt begins to have a bitter taste, owing to the soluble impurities in the mother water. Formerly, the evaporation ceased at this stage, the bitter water, or "bittern," was run away in the gutter, and fresh supplies of saline water were taken to evaporate.

Balard, of Montpelier, discovered in this bittern, as far back as 1826, the element bromine, associated as bromide of magnesium, sodium, and calcium. Since then it has been found in the waters of the ocean, in certain marine animals and vegetables, and, in three instances, in the mineral kingdom, also in an ore of zinc, in the cadmium of Silesia, and in the potash salts at Stasfurt. It was traced by Méne in the coal gas liquor of the Paris gas works. In the United States it was first obtained by Prof. Silliman, in the bittern of the salt wells at Salina, in the state of New York, although in small and unpaying quantities. Dr. David Alter found it in the bittern of salt wells near Freeport, Pennsylvania, and from him the writer's firm obtained the apparatus for manufacturing bromine in 1866, and from that time the great production of this material dates.

The bittern of the salt wells of that locality contains the bromine combined with alkalies, and yields an average product of nine drachms to the gallon of bittern, although a gallon of bittern may represent the evaporation of many hundreds of gallons of salt water as pumped from the salt wells.

To obtain the bromine from the bittern, a special apparatus made of sand-stone is necessary, owing to the intense corrosive action its vapors have on metals. The bittern is agitated with sulphuric acid and black oxide of manganese, whereby chloride of manganese, sulphates of the alkalies, and some chlorine are evolved, and the bromine, by the action of heat, is distilled off and collected, under a layer of water, in suitable vessels, to avoid loss by evaporation.

As thus produced, bromine is a dark brownish-red mobile liquid, evolving, even at the ordinary temperature, a yellowish-red vapor, highly irritating to the eyes and lungs, and having a peculiar, suffocating odor, resembling that of chlorine. It boils at 145° Fahr., and has a specific gravity of 2.99, being three times that of water. It makes alloys with the other haloids, and is difficult to obtain free from them. It forms salts with many metals and alkalies, forms an acid with hydrogen, and with oxygen gives an acid containing five equivalents of oxygen, giving salts called bromates, which have entirely different properties from the hydrogen acid. Its compounds with metals, as well as organic substances, are quite stable. In 1863, bromine was so rare its price was at least $10 per pound; to-day, it can be purchased in quantities for one-sixteenth of that amount, and where ounces were made then, tons of it are now consumed.

Iodine is another of the instances where a waste matter has yielded a costly and valuable product. It is produced from the ashes of sea plants found in France and Scotland, but most largely in the bittern of nitrate of soda in Chili. It is a blackish, lustrous, crystalline substance, and but little used in photography. In medical practice it is one of the most useful specifics, and is consumed in large quantities. In fact, the greatest consumption of the iodides and bromides is in medicine, and are often prescribed in doses as large as thirty grains.

A Journey Through Arabia Petra with the Camera.

BY WILLIAM H. RAU.

Photographing in the desert and among the ruins of ancient places like Petra and Sinai presents, indeed, something novel, even to one who has had varied and unusual experiences.

In this paper, the writer will endeavor to outline the work done in Petra and vicinity, leaving the account of the Sinai trip for another occasion.

After a long and severe struggle on the part of our dragoman with the Bedouin at Akaba in arranging the detail and getting the camels necessary for the journey from Akaba, through Petra, to Hebron, we finally started northward on the broad Wady Araba, soon turning to the right into the Wady el Ithm, and in five days arrived at a high elevation, still a full day's march from Petra.

Travelers frequently exaggerate their accounts of visits to strange and unfrequented places; the object being more to exalt themselves as heroes than to picture the actual condition of things; narrating in graphic terms, the manner in which they instructed, or rather commanded, the Bedouin to do thus and so; making personal compacts with the native Arabs—in fact, assuming the rank and importance of chief of the expedition, whereas they are obliged to make known the simplest needs through the dragoman, on whom they are compelled to rely implicitly for the entire conduct and management of the journey.

There is certainly enough of romance connected with a journey to Petra not to need this fictitious setting. The truthful account, we trust, will be much more interesting, and, we believe, even more dramatic—dealing with the actual facts in the case, and not unduly exalting the one person.

The trip certainly was attended with anxiety, as the entrance to Petra is so narrow as to be easily defended by a few men. Our only hope of getting in at all, was by slipping in unawares. To effect this, our dragoman sent a Nubian scout ahead, instructing him to return in case the coast was not clear, but if nothing should oppose, to hasten on and seek Salim, the Chief of the Bedouin, who would protect us from the swarms of Fellahin, who would undoubtedly clean out any caravans coming that way.

On Saturday, March 25th, we were up at four o'clock. Being at a great elevation, it was intensely cold; but the journey being long, we were obliged to start early. Seven o'clock found us near the summit of the Mount Seir range, overlooking the red rocks and crags of Edom, in the midst of which was Petra. A deep gorge could be traced, running east and west, which has been erroneously engraved in the *Century Magazine* as the Wady Sik. We reached the entrance of this gorge ten hours later. In the furtherest distance loomed up Mount Hor, at whose base lies ruined Petra, and close in the foreground, a mile distant, a ruined city or village. It was a grand panorama, making a glorious picture. As was our custom, the camera was in readiness, and a number of negatives made. After this, we rounded one promontory after another, thinking each would bring us in sight of the Wady Sik, but it was very evident that none in our party knew how far it was, or at what time we might reach it.

Although Hadaya, the dragoman, had been there before, he did not know the country as well as we could wish. At noon, as usual, we stopped to lunch, but our anxiety was so great that I doubt if anyone really enjoyed that meal. During this noonday rest a number of fierce and dirty Fellahin passed us, which increased our anxiety.

On asking our dragoman what we could do in case of attack, he said he could form a barricade of our camels, and fight from behind them, showing us how this was made. While the Bedouin were ranged behind this camel barricade, I made a negative of the scene.

Continuing our journey, we kept on a level, at the same great elevation, until about four o'clock, when we began gradually to descend.

We noticed miles of terraces on the mountains along which we were traveling, all in a state of ruin. These were evidently ancient, as the land is not cultivated now, but looks barren. About five o'clock we noticed a small village to our right, which we found was Eljy, inhabited by Fellahin. Quickly moving on, we slip down on a level with the stream of Wady Mousa, and hurrying along, we soon entered the necropolis, where we saw tombs cut out of the rocks, many of them standing out alone, others cut in the side of the cliff, the prevailing color here being yellow. We emerged from this valley into an open area, fronted by high red bluffs, in which is a narrow cleft—the Gorge of the Sik, through which meanders the tiny stream. Thrown across this gorge, at an elevation of about sixty feet, is an arch, partly in ruin, which forms a gateway; passing under this, we found ourselves in a frightful chasm, choked with stones, overgrown with wild oleanders, caper plants, tamarisks, etc., through which we picked our way on foot. Irby and Mangle, commanders in the Royal Navy, visited Petra in 1819, and say of this gorge:

"There is, however, one frightful chasm, which furnishes, as it did anciently, the only access to Petra on this side, and it is impossible to conceive anything more awful or sublime than such an approach. The width is not more than just sufficient for the passage of two horsemen abreast; the sides are in all parts perpendicular, varying from four to seven hundred feet in height, and they often overhang to such a degree that, without their absolutely meeting, the sky is intercepted and completely shut out for one hundred yards together, and there is little more light than in a cavern. The tamarisk, the wild fig, and the oleander grow luxuriently about the road, rendering the passage often difficult. The caper plant has also a luxurient growth in the Sik."

The prevailing color is red, but occasionally the strong yellow combines harmoniously with it. We attempted several views in this gorge, but they were failures as pictures, as it was quite dark, and too narrow and deep. We followed along this gorge a mile and a quarter, passing many curious altar-like sculptures and niches in the walls, here and there traces of the road, and on the sides we noticed, at a height, a water course passing along in earthen pipes, bedded and secured with mortar, in horizontal grooves cut in the rock. The ravine, without changing its general direction, presents so many elbows and windings that the eye can seldom penetrate forward beyond a few paces, and is often puzzled to know in what direction the passage will open. About midway in this gorge of natural horrors some thirty pilgrims from Bombay were murdered, in 1818, on their return from Mecca, by the Bedouin of Wady Mousa. On reaching the darkest portion of the ravine, a beam of stronger light breaks in at the close of the dark perspective, and opens to view, half seen at first, through the tall, narrow opening, columns, statuary, and cornices of that marvel of Petra—the Kuzneh—looking as fresh as from the chisel, without the tints or weather stains of age, and of a pale-rose color. Only a portion of a very extensive architectural elevation is seen at first, but it has been so contrived that a "statue of victory" just fills the centre of the aperture in front. The rest of the design opens gradually as we advance, and we enter an opening, of moderate size, whose sides are by nature inaccessible. This opening gives admission to a great body of light to the eastward. The position is one of the most beautiful that could be imagined for the front of a great temple; and the richness and exquisite finish of the decorations, offer a striking contrast to the savage scenery which surrounds it. It is very lofty, comprising two stories; no part is built, the whole being excavated, and, in its minutest details, is so perfect that few ancient works can compare with it in the preservation of its architectural decorations. The centre of the superstructure is a circular elevation, surrounded by columns, with a dome surmounted by an urn. The green stains on either side would lead to the supposition that the handles had been of bronze. Above the monument the face of the rock is left overhanging, and it is to this that the excellent preservation of its detail is to be ascribed.

(*To be continued.*)

The Legitimacy of Accessories in Judging the Art Value of Photographs.

Last year, at the close of the St. Louis Convention, when the decision of the judges was made known, much dissatisfaction was expressed because the acknowledgment was made that judgment was influenced by the manner in which the exhibits were mounted and framed.

It was even plainly said that a juror, in making such an acknowledgment, gave evidence of his utter unfitness for the assumed function, inasmuch as he was appointed to adjudicate on the merits of the photographs only, and not in connection with accessories.

This verdict seems to have carried with it so much conviction as to influence the committee in charge of the Exhibition to be held in Chicago: one of the clauses of the regulations distinctly conditioning that "all competing exhibits must be without frames and glass."

In the desire to eliminate all extraneous influences, so that the decision of the judges may be a critique of pure judgment, against which none dares cry out, are we not in danger of defeating the very aim and object for which all exhibitions should be made—the cultivation of artistic feeling in photography. The ultimate intention of coming together is not that the prizes may be justly awarded, but that we may advance in our profession by comparison of work and interchange of ideas.

Therefore, anything which contributes to stimulate the artistic taste should be fostered and encouraged, rather than depressed and disallowed, even if we have to forego the medals.

Undoubtedly the finish of a photograph has great value in enhancing the good qualities it may inherently possess.

If a photograph has artistic values, is it not perfectly legitimate to set them forth to the best advantage? otherwise, it seems like lighting the candie of art and putting it under a bushel. Let us place it rather in the candlestick, where it shall give light to men.

Our Conventions should be schools, not race-courses for the acquisition of prizes.

The St. Louis judge who so candidly acknowledged the influence of the accessories, showed his fitness for the function, inasmuch as he possessed the knowledge to analyze that which operated upon his judgment.

It is not just to judge of a photograph *per se*. We may be able to determine its technical qualities, but we cannot judge of its artistic effect. The manner in which it is mounted and framed actually gives it qualities which it could not possess unmounted and unframed. The effect of the finest artistic work is greatly weakened, and even neutralized, by incongruous mounting. The appropriateness of the mount is seldom taken into consideration. In our Exhibitions, "motley seems to be the only wear." All shades and forms and colors are not only in dangerous proximity, but even mingle together, without the slightest remorse for their violation of the first principles of harmony in color.

When the endeavor is made by some one of taste to enhance the beauties of his exhibit by suitable mounting and framing, why raise the hue and cry that he is trying to warp the judgment of the jurors by illegitimate methods? Why not rather applaued him for his labor, and emphasize the lesson in art it teaches?

If, in our fear to be biased by anything which is not photographic work, we are to be so scrupulous in our judgment, why should we receive the photograph mounted at all, or why not condition that no margin appear? It can be shown that a photograph is enriched by a proper mount. Unfortunately for the purity of our judgment, our eyes are physiologically constructed, so as to be influenced by contiguous colors.

We cannot look upon any two colors and receive the impression from each pure and unadulterated. The one modifies the other, although the observer is unconscious of the effect until demonstrated. We can actually change color to a considerable extent without at all meddling with it directly. All that we have to do is to alter the color which lies adjacent to it. We can satisfy ourselves of the truth of this by a very simple experiment.

If we take two little patches of red paper an inch or so in size, and place one upon a sheet of red paper, the other upon a green sheet, it will be found that the red square on the red ground does not appear nearly so brilliant or saturated in color as the one upon the green paper.

The observer who is ignorant of the facts, will not believe that the two are identical in hue. These changes are due partly to the effect which contrast engenders in the eye, but partly, also, to the distraction of the judgment of the observer.

It will be seen, therefore, that the mount influences the judgment. Let us be just. Let us take away the mount; we will have nothing but the photograph, pure and simple.

Imagine an exhibition of paintings without finish or frames. Is the photographer's art higher than the painter's art, that it may content itself with its own pure sweets?

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The Photographic Society of Philadelphia.

A stated meeting of the Society was held Wednesday evening, June 1st, with the President, Mr. Frederick Graff in the chair.

The Committee on Presentation Pictures for 1887 reported that they had selected "On a Virginia Turnpike," by Mr. John G. Bullock, and "The Elephanta Caves, India," by Mr. Charles R. Pancoast.

The paper for the evening was read by Mr. Charles Truscott, the subject being "Some Photographic Heresies." The reading of the paper was followed by an interesting discussion of various points touched on by the writer.

Mr. Coates preferred to use plates slow enough to give several seconds exposure, as with extremely rapid plates, cap exposures could not well be given for such times as 1, 1½, or 1¾ seconds.

Mr. Zeckwer suggested the plan of counting as rapidly as the numbers could be pronounced from 1 to 5, which would be found to take about 1 second. If then 1⅗ seconds are required for the exposure by counting thus rapidly 1 to 5, and then 1 to 3, the fraction of the second would be determined with sufficient accuracy for practical purposes.

It being suggested that the time could be prolonged by use of a small stop, Mr. Truscott made the objection that this was likely to cause diffraction of the rays of light, and consequent fogging of the plate. He stated that the shutter he used was accurately graded for short time work from $\frac{1}{250}$ to ⅔ of a second.

In reply to a question by Dr. Wallace, Mr. Truscott stated that in wet plate photography with short time exposures, such as portraits of babies, &c., he had frequently heated the developer to about 100° F. before applying to the plate.

For developing short exposures on gelatine plates, he used carbonate of soda, 1 part to 4 of water, varying the solution from ¼ to full strength. He found different brands of plates to vary greatly in the time necessary for development.

As to the most desirable position for a shutter, he considered back of the lens the best for avoiding fog, and in the middle of the lens the best for economizing space.

Mr. Fassitt called attention to an article on page 144 of the *British Journal Almanac* for 1887, on "A Cheap, Simple and Effective Reducer for Gelatine Negatives." The directions called for diluting "ordinary chloride of lime with half its bulk of water," and then immersing the negative in the mixture about 20 seconds.

Mr. Fassitt found on trying the plan that the quantities specified produced merely a thick paste, and not a solution in which the plate could be well "immersed." Its action was to quickly and entirely remove every vestige of the film from the plate.

As to its effectiveness, there could be no doubt, but its use for any other purpose than cleaning glass could hardly be advised. The publication of such impracticable recipes was calculated to do much harm, as they are frequently copied into one journal after another, without trial or investigation by the publishers, continuing their misleading career indefinately.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

Some Photographic Heresies.

Read before the Photographic Society of Philadelphia, by Charles Truscott.

Any photographic theory or opinion opposed to the generally accepted one, may be called a kind of heresy, and the heresy of one year frequently becomes the orthodoxy of the next.

The average professional photographer is generally a very conservative individual, slow to accept anything new, or to adapt himself to a new order of things, and yet possessed of more than the average share of ingenuity. This conservatism may arise from the scarcity of writers on photography who are good at making photographs, many of our best photographic writers being proverbially but indifferent photographers, the consequence of this is a large proportion of very fine writing, not without its value to the art science perhaps, but which is either misleading or ridiculous to the practical worker. Correct theory is, of course, very useful to the intelligent workman; but a false theory is neither ornamental nor useful, and a theory founded on imagination or superficial experiment is very apt to be false.

Many of us can remember when a collodio bromide and geletino-bromide emulsion experimentalist was regarded as a kind of fanatical searcher for the photographic philosopher's stone, and the possibility of producing a dry plate to equal wet collodion in sensitiveness, was looked upon as on a par with photography in natural colors. The journals were half-full of the heresy of emulsion photography, but nobody but enthusiasts would read such rot, until Charles Bennett announced photographing an interior by gas-light, and, what was more, showed the results before one of the London photographic societies, when the photographic world began slowly to awake to the fact that it was on the eve of a great photographic revolution. Then, as there was no denying the rapidity of the new gelatine dry plates, those who had mastered the wet collodion process, but had not the energy or ability to acquire at once the skill to do as good work by the new process, naturally blamed the process, and denied the possibility of its producing such good results, and there still are plenty of photographers in this city to-day who profess to believe the same.

When steel pens were introduced, there were for years many who still clung to the old scratching quill pen, but it was buried with them.

I propose to let wet collodion, for negative-making, bury itself, having been among the first to dispense with it for that purpose.

Gelatine plates.—Photographers generally are afraid of a very rapid plate for general work, they say that qualities, such as sparkle and latitude, have to be sacrificed to rapidity. I do not believe a word of it. I hold that a good rapid plate is capable of doing all that a slow plate is, and much more beside. Then why ride a mule when you may have a good horse for the same money. It is like some beginners I know who were very anxious to possess a lens of great rapidity; they obtained one, but never, under any circumstances, think of using it with any but the smallest diaphragms. They have two good legs, but are afraid to walk, and so hop about on one; or they may be likened to a man who uses steam-power: when his boiler has been tested to 400 lbs., running with safety at 100 lbs. pressure, he is afraid to work at more than 25 lbs., and, as a consequence, is always short of steam to drive his engine and machinery efficiently. Gentlemen, how many photographers are there who take full advantage of the great rapidity of the modern dry plate of to-day? Very few. Indeed, I hold they cannot do so with the appliances which are on the market to-day.

Sometimes we are told that "gelatine has ruined the business." What! enlarging the scope and power of photography has ruined it! Did the collodion process ruin photography? It ruined the Daguerreotype process; but photography? Not much. Gelatine may, and will, supersede collodion for negative-making. It cannot ruin photography, but is a new power and blessing to the photographer and the world, and we do not yet know half its capabilities.

Development.—Another heresy of mine is concerning development. Development is not the simple matter some people would have us believe. It is a little science in itself, and not to be learned in a year. Now it is generally understood that slow development is the best treatment for a minimum exposure. My practice is directly opposite to that, inasmuch as I invariably use the most energetic developer I can compound and the plate will stand for such a case. I have no faith in homœopathic development as a remedy for general debility in the latent image. Did we use a weak developer for under-exposure on wet collodion plates? No; but both strong and hot, because it was right in theory and practice.

The amateur photographic epidemic is regarded by many professional photographers with a great deal of misgiving. Some even going so far as to say, "Amateurs are ruining the business." Now, I have had considerable opportunity of forming a correct opinion on this point; and while I admit there is a certain class of mercenary plate spoilers, calling themselves amateurs, who expect their camera to earn its own fodder, or who go to Florida, or some other health resort, with the intention of making photography pay part of their expenses, yet I do not admit that calling themselves amateurs will make them such, in any sense of the word. They are professionals, to all intents and purposes, for the time being. Professional quacks, sailing under false colors. I have no doubt that they do some little injury to the business by cultivating the popular idea that photographs do not cost much to make, and that if a man has good instruments and plenty of light, he has every requirement to make good photographs. This idea the genuine amateur is doing yeoman service to correct. See how he is educating the public taste to discriminate between good and bad photographs. Then look at the number of those who buy expensive instruments, and yet never, or only after much experience, produce good photographs. Is not that teaching the public (what they are slow to learn) that skill is an important factor in the production of good photographs? And when the public are able to recognize the qualities of photographs, and appraise them at their intrinsic value, then the profession will be ruined to all incompetency, whether called amateur or professional, and the skilled workman will find his hands full, and prices good.

I was out with my camera a few days ago, and a gentleman came by and asked, pointing to the camera, "What sort of pictures does that make, clear?" I must confess he did not make himself clear to me, so I answered, "That is for making photographs." He said, "But does it make them clear?" I replied, "That depends on how it is used; it is a question of skill, not tools; one man will carve better with a penknife than another will with the finest set of carving tools."

While I possess the most complete outfit probably in this city, and set a high value on it, I should be foolish to expect my work to be good simply because I possess good tools.

Let us take a comprehensive view of this subject, and see how it looks from a distance in a good light. The universe, and all contained therein, visible and invisible, has to be photographed. Who is to do it? We professionals cannot begin to do it; it is much too large a contract. Then what are we to do? Are we to be like dogs in the manger, or cheerfully recognize the valuable service our amateur brethren are rendering in this work? How much, do you think, of the work done by amateurs would come to the profession? Less than one-tenth; that is to say, more than nine-tenths of the work done by amateurs would never be done if they did not do it. Then let us not forget the splendid services amateurs have rendered the art science in the past. Surely they have earned their diploma. Then away with petty jealousies, and such old cries as "The craft is in danger!" If the craft is in danger, it is from within, and not from without; and it will generally be found that the most jealous are the incompetent—those who have no special skill to rely on.

There is a general superstition in the profession that a north light is a necessity for a portrait studio. In fact, I very much doubt if there is a south skylight in this city. See the trouble they have gone to all down Arch and Chestnut streets, to obtain a north light; they have had to either build over two houses, or spoil the length of the studio. Now, I have worked under many skylights, and prefer a south light every time.

Speaking of portraiture, a portrait combination lens is supposed to give great roundness of image; of course, opticians favor this view, as well as many photographers. My opinion is, it is a question of lighting, and has little or nothing to do with the lens.

Mr. Burton has lately been finding fault with the term "depth of focus," but he does not suggest a better. He says it is impossible that more than one plane can be perfectly defined at once by any lens, no matter how small the diaphragm used. Truly, we are getting things down very fine. Why did he not go further, and object to the term "flatness of field," because no lens has a perfectly flat field? Why did he use the term "perfect definition," when he knew that the correction of all photographic lenses is a compromise, and that the photographic lens has not yet been made perfectly free from astigmatism? Consequently, there is no such thing as perfect definition. I notice some writers on photographic optics have lately been using the term "penetration;" but is it any improvement on "depth of focus?" I think not; besides it is not nearly so expressive. The English language is a very good one, but, like many other things, is not quite perfect.

Another heresy of mine is that every live photographic society should have a standing committee, which may be called the "Research Committe," composed of three experts, who should, if possible, be, either individually or collectively, skilled in photographic chemistry, photographic optics, and mechanics, with power to add to their number for special work. They should report at each monthly meeting on such matters as might have been referred to them, or in their judgment they may deem worthy of investigation. One part of the order of business should be "Report of Research Committee." A question may be asked which no one is able to answer, such as "Is chloride of sodium a restrainer or an accellerator?"—referred to the Research Committee. An optician brings out a new lens or a new invention, or a platemaker a new plate, for which they claim certain possible or impossible qualities. Knowing a society has a competent Research Committee, samples are forwarded for examination, and the reports of such committee would be of great value to the members and the photographic world.

I have heard it stated, on good authority, that a diaphragm which expands and contracts during exposure would not give good definition with a single lens, but having tried it, I can say it is a mistake, for it does not injure the definition in the least, but improves it.

J. Trail Taylor, in a lecture on lenses recently, proposed as a corrector for single lenses a pair of common, cheap lenses, to be placed near the diaphragm; one a periscopic, of short focus, and the other a concave lens, of the same focus. I have tried it, and having no focus, it has no effect, as we might expect. This gentleman is usually so very accurate, especially in optical matters, that I am the more surprised he should make such a suggestion without having first tested it.

I was speaking of this to a gentleman whom you all know, and he said, "Have you seen my plan of doing that?" I answered, "No; what is it?" He said, "You are aware that a square diaphragm gives cushion-shaped distortion." I replied, "I did not; but I did know that placing the diaphragm behind the lens gave that form of distortion." "Well," he said, "a square diaphragm gives it, too;

now I make a round diaphragm, and outline a square outside of it, and in each corner of the square I cut out a triangular aperture; which will give a rectilinear picture." I tried the square diaphragm, and found it did not give the cushion distortion as stated, so did not think the other was worth trying, as the distortion is not influenced by the shape of the diaphragm, but by its position. I think the single lens has a great future before it, however some may despise it.

One article of my photographic creed is, I believe in the capabilities of a plate of the most exalted sensitiveness, the largest diaphragm, and the shortest exposure that will give the amount of detail and definition desired.

To the Photographic Fraternity.

Time has carried us swiftly on since our last meeting in St. Louis, and will soon bring us together again at the Convention in Chicago, which will open on August 9th. To our association the great event of the year is the Convention; there we renew old acquaintances and friendships, and make new ones; exchange ideas, and show our work. There we go to learn and to teach; to make selections of apparatus and accessories form the thousands of useful articles exhibited by the enterprising stock dealers in their departments; and we thus combine both pleasure and profit by spending a few days among friends and fellow-laborers and the most beautiful attractions that the art of photography can offer us. All should avail themselves of this opportunity for pleasure and recreation, and so enjoy all the benefits of membership of the Photographers' Association of America.

I trust that the craft will turn out strongly, both in numbers and in exhibits of work for our grand art department, for which the association, at the late Convention at St. Louis, voted the sum of one thousand dollars (out of its own funds) for prizes. The Executive Committee, at its meeting in January, endeavored to meet all the demands and suggestions of the fraternity, as well as those of the photographic journals, and after careful consideration, a schedule of prizes was adopted for the more important classes of practical photography, being one diamond badge (grand prize), seven gold, thirteen silver, and ten bronze medals for home productions; one gold and one silver medal for exhibits from abroad; and one silver medal for the best improvement in photo apparatus or accessories produced since the last Convention. In order to prevent the carrying off of medals by the same parties who won them last year, and to give others a chance, it was resolved that for the coming Convention, winners of gold medals at the Convention of 1886 should be eligible for the grand prize only, and winners of silver medals to be eligible for gold medals and the grand prize only, which latter is open to all members of the association. By these means the winners of last year compete in higher classes this year and have an incentive to eclipse their work shown then.

To meet the demand of a majority of our members, that photographers of smaller resources who cannot compete with their more fortunate brethren in the large cities should have a chance to win an association medal, a class was formed for their benefit, for which class ten bronze medals of merit are to be awarded for the best ten collections of twenty-four cabinets each; and in order to reserve these for whom they are intended, it was resolved that parties competing in this class cannot compete in any other class. A rule was also adopted that all competing exhibits must be without frames or glass, so that the merits of the photograph alone will appear, and also to more easily make comparisons for award. It is hoped that the work of the committee will prove satisfactory to the members, and I can only add that we have done only that which we considered to be for the best interests of the association. Bring with you or send your choicest work, so that you may compare it with that of your friends, and learn if there is room for improvement.

Come prepared for practical discussion on photographic subjects. Contribute your share towards the general fund of knowledge and experience, and do not hide your light under a bushel. Be as much prepared to give the advantage of your experience to your colleagues as you are to receive information from them, as in this manner only can be attained the great object for which our association was formed. Our association, born seven years ago in Chicago, will return to its birthplace full of vigor and strength, with the best prospects for permanency, it now being an incorporated society.

Come and enroll yourself in the ranks of our grand army, which has inscribed on its banner the progress of photography; help to fight the battle for improvement in every direction ; be in the front rank at all times, and do not lag in the rear.

Use the short time left for preparing, and, when the time comes, come one come all. Fraternally yours,

G. CRAMER,
President P. A. of A.

Photographers' Association of America.

OFFICE OF THE LOCAL SECRETARY,
PHOTOGRAPHERS' ASSOCIATION OF AMERICA.
298 Dearborn Street, Chicago.

The Committee on Transportation has obtained reduced rates of fare for those attending the Eighth Annual Convention of the Photographers' Association of America. Any further concessions or arrangements relating to transportation and hotels, will be published in the several photographic journals. A liberal reduction on hotel rates is assured.

CHAS. GENTILE,
Local Secretary and Committee on Hotels.

TRANSPORTATION.

A first-class ticket (either unlimited or limited) must be purchased to Chicago, for which regular fare will be paid, and, upon request, the ticket agent will issue a certificate of such purchase.

If through tickets cannot be procured at the starting point, you will purchase to the most convenient point where such through tickets can be obtained, and repurchase through to Chicago, requesting a certifiate from the ticket agent at the point where repurchase is made. Tickets for return will be sold by the ticket agent at Chicago, at one-third the lowest regular limited fare. In case there is no limited fare to the point desired, one-third of the regular unlimited fare will be used.

Certificates for return tickets will be signed by G. M. Carlisle, Treasurer.

It is very important that a certificate be procured, as it will indicate that full fare has been paid to Chicago, and that you are entitled to the reduced fare for returning.

SECOND REPORT OF COMMITTEE ON TRANSPORTATION:

We find that a lower rate of fare can be secured if fifty (50) or more will rendezvous at some one point, and purchase their transportation at the same time.

The rate will be one fair for the round trip.

It is to be hoped that members will at once interest themselves in locating one of these excursions.

Apply to the undersigned if you will engage in this work, and circulars will be furnished.

GAYTON A. DOUGLASS,
Committee on Transportation.

185 Wabash Ave., Chicago.

PRIZES AT THE CONVENTION.

The list of offers made by the convention has been published. The offer of the Stanley Dry Plate Co. has also been made known. The following are in addition :

PRIZE OFFER FOR PICTURES ON EASTMAN'S PERMANENT BROMIDE PAPER,

To be Exhibited at the Convention of the P. A. of A., Chicago, August 9, 1887.

To stimulate the exhibition of work on bromide paper, and show what has been accomplished during the past year by our customers, we make the following offer of prizes :

PLAIN ENLARGEMENTS.

Class A.—$150 for the best collection of unfinished enlargements.

$75 for the second best collection of unfinished enlargements.

Class B.—$50 for the best unfinished portrait enlargement.

$25 for the second best unfinished portrait enlargement.

Class C.—$25 for the best unfinished enlargement from landscape or marine view negative.

CONTACT PRINTS.

Class D.—$50 for the best collection of contact prints.

FINISHED ENLARGEMENTS.

Class E.—$100 for the best enlarged portrait finished in black and white.

$50 for the second best enlarged portrait finished in black and white.

$25 for the third best enlarged portrait finished in black and white.

Class F.—$100 for the best enlarged portrait finished in color.

CONDITIONS OF OFFER.

Unfinished prints must be mounted on stretcher or plain white card, and exhibited without frame or mat. Finished pictures may be framed. Plain enlargements must be 20x24, or larger; no limit as to size of finished pictures or contact prints. Each exhibitor will be required to certify that all the pictures that he enters for these prizes were made on Eastman's Permanent Bromide Paper, and in case of enlargement, if required by the judges, he shall show the original negative before receiving prize. Each exhibitor will be furnished, on application by mail, to the Eastman Company, with a printed card bearing number and stating class in which his picture, or pictures, are entered. Pictures must be sent prepaid to the Secretary of the Exhibition, with name and address of exhibitor marked on the back of the picture.

Prizes to be awarded by three judges appointed at the convention. The enlarging department of the Eastman Company will not compete for any of these prizes.

Grand total of prizes to be offered by the Eastman Dry Plate and Film Co., amounts to $650, to be awarded and paid in cash, at Chicago, August 9, 1887.

AIR BRUSH PRIZES.

The Air Brush Manufacturing Company offers two prizes at the Convention of the Photographers' Association of America to be held in Chicago, August, 1887.

An air brush will be given for the best portrait in black and white, finished exclusively by it, and another will be given for the best water-color portrait finished exclusively by the air brush.. Portraits may be of any size and upon any print.

The awards will be made during the convention by three judges who shall be members of the P. A. of A., and who shall be chosen at the time of the convention.

Each certificate of award will be accompanied by an order upon the Air Brush Company for one complete air brush.

W. H. WALMSLEY & CO'S PRIZES.

W. H. Walmsley & Co., of Philadelphia, offer the following prizes for competition at the Chicago Convention .

First—For the best examples of portraiture—from cabinets to life-sized heads —made with Beck's "Autograph" Rectilnear lenses (not smaller than No. 6), one No. 7 "Autograph" lens, the cash value of which is one hundred dollars, fitted with the new Iris Diaphragms, valued at $67.50.

Second—For the best work, other than portraiture, such as architecture, landscapes, interiors, etc,, made with Beck lenses of any size, one No. 5 "Autograph" lens of the cash value of sixty dollars.

These lenses will be made by the Messrs. Beck especially for this occasion. They will be appropriately engraved, and will be exhibited during the convention.

CONDITIONS OF OFFER.

Each exhibitor will be required to certify that all the pictures he enters for these prizes, were printed from negatives made with Beck's "Autograph" Rectilinear, or Wide-angle Lenses, in accordance with the above offers. Pictures must be sent prepaid to the Secretary of the Exhibition, with name and address of the exhibitor marked on the back, together with the sized lens used in its production, and with such other information as he may see fit to impart.

Prizes to be awarded by three judges appointed at the convention.

CASH PRIZE BY THE STANLEY DRY PLATE COMPANY.

The Stanley Dry Plate Co., offers a hundred dollar cash prize to be competed for at the coming Convention of the Photographers' Association of America, in Chicago, August 9, 1887. This sum will be given as a prize for the best collection of photographs, either landscapes or portraits, made on the Stanley dry plate and displayed at the Chicago Convention. Pictures may be of any size. The award will be made on the second day of the convention by three judges, members of the Photographers' Association, who will be appointed at the time of the meeting of the convention.

CASH PRIZE BY E. & H. T. ANTHONY & CO.

A cash prize of one hundred dollars will be given for the best collection of untouched enlargements, consisting of not less than three pictures, made upon Anthony's Bromide Paper, at the coming Convention of the Photographers' Association of America. Each picture to have a private mark of the photographer, and a duplicate mark with the name of the photographer to be sent in so that the judges can be advised after the award is made to whom it belongs.

After the convention, all competing exhibitors for this prize will be presented with one dozen sheets of the bromide paper, 20x24.

The judges will be three members of the Photographers' Association of America.

PRIZE OFFERS FOR PHOTOGRAPHS MADE WITH THE MORRISON LENS.

The Scovill Manufacturing Company is authorized by Mr. R. Morrison to make the following prize offers:

For the best photograph exhibited at the Chicago Convention, made with a Morrison Lens:

The choice of a Morrison Leukoscope Lens, cash valuation, from $80 to $180.

For the second best photograph exhibited at the Chicago Convention, made with a Morrison Lens:

A set of Morrison Wide-Angle Combination Lenses in a morocco case, cash valuation, $80.

The lenses to be suitably engraved with the winner's name, etc., etc.,

The awards to be made at the convention by judges appointed at that time.

On Red and Purple Chloride, Bromide. and Iodide of Silver; on Heliochromy, and on the Latent Photographic Image.

The American Journal of Science for May.

In this series of papers it will be my obbect to show: (1) That chlorine, bromine, and iodine are capable of forming compounds with silver exhibiting varied and beautiful coloration, peach-blossom, rose, purple, and black. That these compounds (except under the influence of light) possess great stability: that they may be obtained by purely chemical means, and in the entire absence of light. (2) That of these substances the red chloride shows a tendency to the reproduction of colors. It seems not improbable that the material of the infinitesimally thin films obtained by Becquerel, Niepce de St. Victor, Poitevin, and others in their experiments on heliochromy may be the red chloride. (3)

That these substances, formed by purely chemical means, constitute the actual material of the latent or invisible photographic image, which material may now be obtained in the laboratory, without the aid of light and in any desired quantity. They also form parts of the visible product resulting from the action of light on the silver haloids.

For more than a generation past, the nature of the latent photographic image, that which forms the basis of development, has been in dispute. Two theories have been maintained. According to the one, the first effect produced by light is simply a physical change, predisposing the elements of the silver haloid to dissociation, so that when a reducing agent is applied the molecules so affected yield more quickly to its influence. According to the other theoy, the invisible image is formed of a subsalt (subchloride, etc.). Observations which I published many years, led me strongly to the first-mentioned of these theories. But of late years, results have been obtained not easily reconcilable with it. On the other hand, the theory that the latent image is formed of subsalt is opposed to striking facts. Silver subchloride, for example, is an unstable substance, quickly destroyed by dilute nitric acid. But I have formed a latent image on silver chloride, and after exposing it for five minutes to strong nitric acid (s. g. 1.36), have developed the image without difficulty; the same with silver bromide. Evidently these images, which so strongly resisted the action of undiluted acid, could not be formed of simple subchloride and subbromide of silver, substances quickly destroyed by it.

In the desire to find a satisfactory explanation of the nature of the image based on adequate chemical proof, I have devoted nearly three years of laboratory work to this and to closely allied subjects. I am led to the conclusion that neither of the older views is correct. A truer theory seems to be deducible from the result of some experiments which I published in 1885, to the effect that the silver haloids were capable of uniting with certain other substances, much in the same way that alumina forms lakes. When a silver haloid was precipitated in the presence of certain coloring matters, they combined with it, and though soluble in water, they could not be subsequently washed out. They had formed a somewhat stable compound, although the proportion of coloring matter was very small in comparison with the haloid; evidently much too small to represent a stoichiometrical composition. I find that a silver haloid may, in the same way, unite with a certain proportion of its own subsalt, which, by this union, quite loses its characteristic instability and forms a compound of great permanence.

Another explanation is possible; the subsalt may combine with the normal salt, not in the manner above described, but in stoichiometrical proportion, and this compound may be diffused through ordinary silver haloid. I have not been able to find any reaction decisive between these explanations, but the general behavior of the substance seems rather to indicate the first named explanation as the true one. When the red chloride, for example, has been boiled with dilute nitric acid for a few moments to eliminate any uncombined subchloride, the proportion of subchloride left has never exceeded eight or nine per cent. in over thirty specimens analyzed. If we took this to represent a compound in equivalent proportions, we should have to suppose the union of at least twenty equivalents of $Ag\ Cl$ with one of Ag_2Cl, which is improbable. If we suppose that these colored substances, containing from less than one-half per cent. up to eight or nine per cent. of Ag_2Cl, consist of a compound of one equivalent of subchloride united to a small number of equivalents of normal chloride, mixed mechanically with a large quantity of normal chloride, then it would be improbable that specimens could not be obtained containing a larger proportion of this compound, and consequently of Ag_2Cl, but, as already said, specimens containing more than nine per cent. after thorough treatment with nitric acid to remove the uncombined subchloride, I have never obtained; generally, the amount is less. Even when silver chloride, bromide, or iodide contains as little as one-half of one per cent. of subsalt combined, its properties are greatly changed. It has a strong coloration, and its behavior to light is altered. Even a much less quantity, one inappreciable to analysis, is capable of affecting both the color and the behavior to light. It is one of these latter forms of this substance that constitutes the actual material of the latent photographic image. Adequate proof of this will be given in the second part of this paper.

RED SILVER CHLORIDE.

Of the three haloids, the chlorine salt is the most interesting, because of its relations to heliochromy; it is also the most stable of the three compounds, and exhibits, perhaps, a finer variety of coloration, though the bromide and iodide are also obtainable of very beautiful tints. The chloride shows all the warm shades from white to black through the following gradations: white, pale flesh color, pale pink, rose color, copper color, red-purple, dark chocolate, and black.

These compounds are obtained in an endless variety of ways: by chlorizing metallic silver; by acting on normal chloride with reducing agents; by partly reducing silver oxide or silver carbonate by heat, and treating with H Cl; by forming suboxide or a subsalt of silver, and treating with H Cl, followed by nitric acid; by acting on subchloride with nitric acid or an alkaline hypochlorite, etc.; by attacking almost any soluble salt of silver with ferrous, manganous, or chromous oxide, etc., followed by H Cl; by reducing silver citrate by hydrogen, and treating it with H Cl; by treating a soluble silver salt, or almost any silver solution, with potash or soda, and almost any reducing agent, cane sugar, milk sugar, glucose, dextrine, aldehyde, alcohol, etc., and supersaturating with H Cl; there is no organic easily oxidizable substance that I have tried that has failed to give this reaction. Also almost any salt of silver exposed to light, treated with H Cl and then with hot, strong nitric acid, yields it. Almost any of these classes represents a long range of reactions, each susceptible of endless variation. In fact, the more the matter is studied, the more extended the range of reactions is found to be that give rise to the formation of this substance. To show how slight an influence will lead to the production of red chloride instead of white: if freshly precipitated argentic oxide is mixed for a few moments with starch or tragacanth paste, and is then treated with H Cl, the result is, not white, but pink, silver chloride. Even raw starch flour mixed with silver oxide will, in a few moments, cause it to give a pale flesh colored chloride with H Cl. Boiled starch or tragacanth paste does this more quickly, and acts more strongly, even in the cold, and still more if heat is applied.

Although red is probably the most characteristic color of this substance, so that I have spoken of it above as red chloride, nevertheless this hardly seems a proper name for a substance that is often purple, chocolate, or black, sometimes brown, or even ochreous, sometimes lavender or bluish, and is probably capable of assuming every color of the spectrum. To call it argento-argentic chloride would infer a stoichiometical composition that, as already mentioned, seems very uncertain, too much so to serve as the basis of the name. Therefore, and as these substances have been hitherto seen only in the impure form in which they are produced by the continued action of light on the normal salts, it might be convenient to call them photosalts, photochloride, photobromide, and photoiodide, instead of red or colored chloride, etc., and thus to avoid the inexactness of applying the term red chloride to a substance exhibiting many other colors.

(*To be continued.*)

Were it asked, Who of all those connected with photographic science has, by original research, careful experiment, and lucid description, done most to advance our art in what we may term its practical science? it is probable that the answer would be M. Carey Lea, of Philadelphia.—*British Journal of Photography.*

Pacific Coast Amateur Photographic Association.

SAN FRANCISCO, May 18th, 1887.

To the Editor of the American Journal of Photography, Philadelphia.

On the 5th inst. was held the regular monthly meeting of the Pacific Coast Amateur Photographic Association, Mr. Tasheira, the President, being in the chair, and a good attendance of the members being present.

The feature of the evening was the exhibition by Dr. S. C. E. Passavant of specimens of chloride positive paper manufactured by him. The Doctor, in his remarks, said that while this process of printing is not entirely new, he brought it to the attention of the society as being something novel to some of its members.

The process consists of coating a non-porous gummed paper with a collodion chloride of silver emulsion. The printing is done in the ordinary way, as with silver paper, but requiring only about one-fifth of the usual time. The advantages of the use of this paper are its quickness in printing (being five or six times as rapid as silver paper), and its permanency. After printing, the image can be easily transferred to a gelatine-coated plate, or a suitable piece of wood or other substances, by squeegeeing the printed paper face down on the substance to be coated. The gum can then be readily dissolved, and on lifting the paper, the image will remain. A brush should be used, with plenty of water, to take off the gum remaining. The plate or other substance on which the impression is left, is then toned down with a sulphocyanide of ammonium and gold bath (gold, 1 to 100; sulphocyanide, 2 to 100). It is then fixed with the ordinary hypo bath.

Mr. Will Brown exhibited his patented finder, with differential focussing attachment, and in explanation said: "I have attempted to arrange a camera by which any object, near or distant, may be fucused without removing the plate-holder to insert the ground glass focusing screen.

"The focus is obtained by a supplementary camera, whose lens is moved in unison with the main lens of the camera proper by a differential lever attached thereto, and thus the images on the cameras are of one and the same focus."

The usual routine business was conducted, and complimentary remarks were made as to the energy displayed by the new room committee, and as to the orderly appearance of all things connected with the society's rooms since the present committee had been in charge.

After payment of dues, which was promptly responded to, the society adjourned until its next monthly meeting.

SIDNEY M. SMITH,
Corresponding Secretary.

Our Illustration.

We are indebted to Mr. H. Parker Rolfe, an artist of this city, for the series of views illustrating the present number of the JOURNAL.

The work is characterized by artistic feeling in the selection of subject, as well as for technical excellence in the manipulation of the plates.

The series comprises a variety of subjects, all of which possess vigor, yet softness, and a depth of tone, yet wealth, in gradations, which make it a pleasure to study them individually.

The prints are upon Morgan's Brilliant Albumen Paper, which always does justice to a fine negative.

June Bargain List.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	$4 00
1—Papier Mache Pedestal and Base, good order	2 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—Papier Mache Log, 2 feet long	2 00
1—8x10 Osborne Interior, new, light left of sitter	16 00
1—Pharaoh Position Chair	20 00
1—Seavey baby shell, with background, complete	4 00
1—8x16 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, lt. right	15 00
1—8x8 Seavey Ground, new	15 00

1—8 x 10 Osborne's interior background, new, lt. left	$20 50
1—8 x 10 Seavey's interior background, new, lt. left	20 00
1—8x8 interior background	15 00
1—7x9 exterior ground	7 50
1—8x10 Hough exterior ground	16 00
1—4x8 Osborne's tide slip	7 50
1—Iron centre camera stand	2 50
5x8 orange glass developing trays	40
Wood drop shutters	1 50
Negative boxes, odd sizes, each	20
1—Adjustable Am. Position Chair	12 00
1—Position Chair, rising back	8 50
1—6 inch Burnisher	5 00
4¼x5¼ Beveled Edge Cards, per doz.	10

Camera Boxes.

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—5x8 A O Co. first quality box, 4 double holders, carrying case tripod with 1 5x6 Dallmyer R R Lens, used very little, good as new	68 00
1—4x5 Anthony's View Camera and 6 Holders	12 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder	6 00
1—½ size Ferrotype box, with three tubes	13 00
1—5 x 8 Stereoscopic camera, with matched pair Waterbury lenses, two holders and case	10 00
1—Card size portrait box, with Darlot tube and double holders	2 00
1—3¼x4¼ Bicycle Camera, holder and case	9 00
1—4x5 Waterbury outfit	6 00
1—4x5 Waterbury outfit	6 50
1—4x5 '76 outfit	15 00
1—5x8 Flammang Revolving Back Camera, Single Swing, Daisy Holder and Case	20 00
1—5x8 Flammang Revolving Back Camera, Double Swing, Daisy Holder and Case	25 00
1—10x12 Cone View Camera, Double Swing	52 .80
1—11x14 New Haven Reversible Back Camera, Double Swing	44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing	46 00

Lenses.

1—1-4 Size Darlot Gem Lens	3 00
1—Finder	2 25
1—Prosch Shutter No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched Pair imitation Dallmeyer Lenses, per pair	$12 00
1—5x8 Dalmeyer View Lens	15 00
1—Woodward Condensing Lens	10 00
1—4x4 Darlot Globe Lens	25 00
1—No. 5 A 4x4 Voigtlander Portrait Lens	45 00
1—4x4 Darlot globe lens	20 00
1—5x8 Abendroth wide angle view lens	18 00
1—11x14 Zentmeyer combination	40 00
1—⅓ size L. W. Krantz portrait lens	12 50
1—½ size C. C. Harrison portrait lens	8 00
1—½ size C. C. Harrison portrait lens	5 00
1—¼ size portrait lens	3 00
1—5x8 Waterbury lens	2 00
1—¼ size Harrison Portrait Lens	5 00
1—10x12 Dallmeyer Rapid Rect. Lens	50 00
1—4x4 Dallmeyer Group Lens	50 00

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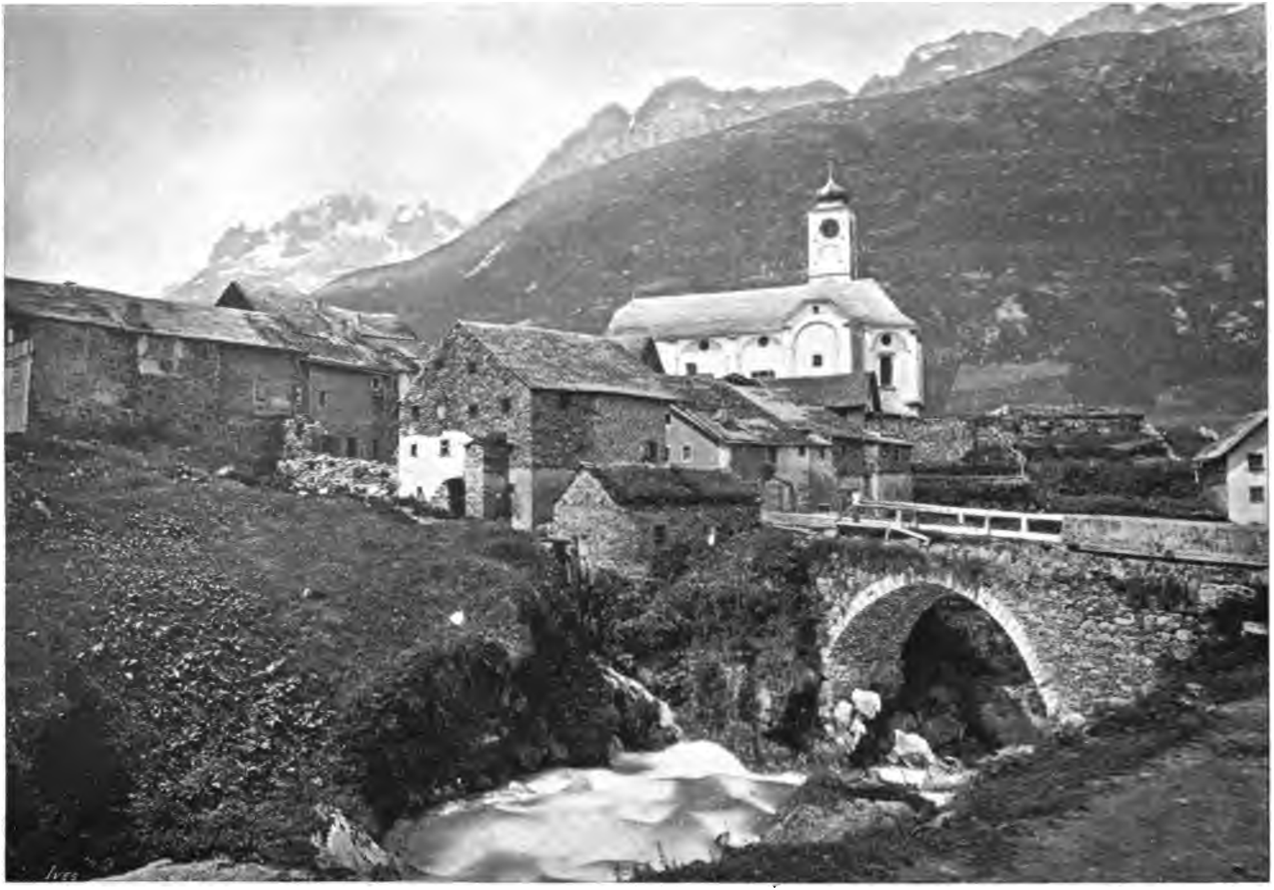

At Hospenthal, Switzerland.

FROM A PHOTOGRAPH BY DR. ELLERSLIE WALLACE, PHILADELPHIA.

AMER[illegible]

JOURNAL OF P[illegible]RAPHY.

Published by [illegible] CO.

VOL. 8. [illegible]

AMERICAN
JOURNAL OF PHOTOGRAPHY
—PUBLISHED MONTHLY—
$1.00 per Annum, in Advance

Photographic Skies

BY ELLERSLIE [illegible]

The treatment of the [illegible] photographic landscapes is a [illegible] thing. As in the selection of the view and the lighting there [illegible] opportunity for the photographer [illegible] good taste, so there [illegible] management of the sky [illegible] picture, which, it is hardly necessary [illegible], will be a prominent feature.

As we desire the following remarks to apply, as before said, to the general management or treatment of the sky as a whole, and not alone to the introduction of clouds, let us begin by reminding our readers that certain subjects will do best on a plain white sky or one tinted to suit the view. It would be impossible to name or state exactly just what subjects should be taken without the clouds, but we can imagine that architectural studies, as a class, would be better without them, at least in those cases where the building filled up the greater portion of the picture. For instance, among all the fine views of the Capitol at Washington that it has been our fortune to see, we can not call to mind a single one that would have been improved by either a natural or an artificial sky. The views to which we refer were all made at close quarters, so that the plate was well filled up by the building, and the eye was, in every case, quite satisfied by the majestic lines of the architecture, as well as by its imposing mass, so [illegible] sky would [illegible]. But, on the other [illegible] the [illegible] as [illegible] the [illegible] developed [illegible] printed [illegible] is made [illegible] white paper [illegible] the art [illegible] whether a much [illegible] effect from some of the modern thin negatives was much of an improvement. Either of these effects would be valuable in extreme cases, but for the average of landscape and architectural subjects, a softening of the detail that [illegible] careful exposure to light during the printing, or protection of the film, [illegible] by a paper backing and [illegible] even blocking out entirely, would [illegible] manifest improvement.

We presume that the [illegible] tricks and dodges by [illegible] tive negatives are helped [illegible] enough known to require [illegible] tion here. Let us also remind [illegible] readers who are clever with the [illegible] stump, that very pretty effects [illegible] made with their aid. The latter [illegible] work of the more purely ar[illegible] need not detain us here, [illegible] being rather to consider how the camera and chemicals may be treated as [illegible]

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, JULY, 1887. NO. 7.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
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Photographic Skies.

BY ELLERSLIE WALLACE.

The treatment of the sky in photographic landscapes is a most important thing. As in the selection of the point of view and the lighting there is every opportunity for the photographer to show his good taste, so there will be also in the management of the sky portion of the picture, which, it is hardly necessary to say, will be a prominent feature.

As we desire the following remarks to apply, as before said, to the general management or treatment of the sky as a whole, and not alone to the introduction of clouds, let us begin by reminding our readers that certain subjects will do best on a plain white sky, or one tinted to suit the view. It would be impossible to name or state exactly just what subjects should be taken without the clouds, but we can imagine that architectural studies, as a class, would be better without them, at least in those cases where the building filled up the greater portion of the picture. For instance, among all the fine views of the Capitol at Washington that it has been our fortune to see, we can not call to mind a single one that would have been improved by either a natural or an artificial sky. The views to which we refer were all made at close quarters, so that the plate was well filled up by the building, and the eye was, in every case, quite satisfied by the majestic lines of the architecture, as well as by its imposing mass, so that an introduced sky would have seemed like an impertinence. But, on the other hand, we can also imagine a view in which this same building would be nothing more than a prominent object in a general panorama of the city, and where the presence of clouds would be almost indispensable to save the picture from tame monotony.

The printing density of the skies of landscape negatives is, by no means, as much under the operator's control as the other portions of the view, and this simply because the exposure and development must be graded to suit the principal objects, the sky being of secondary importance. If the reproach was made that photography gave nothing but white paper for skies in the earlier days of the art, it might now be asked whether a mud-colored effect from some of the modern thin negatives was much of an improvement. Either of these effects would be valuable in extreme cases, but for the average of landscape and architectural subjects, a softening of the dead white by careful exposure to light during the printing, or protection of the thin, weak sky by a paper backing and stump-work, or even blocking out entirely, would be a manifest improvement.

We presume that the various mechanical tricks and dodges by which these defective negatives are helped out, are well enough known to require no further mention here. Let us also remind those of our readers who are clever with the brush and stump, that very pretty effects may be made with their aid. This latter being work of the more purely artistic character, need not detain us here, our present object being rather to consider how the camera and chemicals may be treated as artists' tools, so to speak, for the successful rendering and combination of natural atmospheric effects.

It has not been a very long time since we devoted an article in these pages to the general technics of cloud photography. From the practical standpoint, cloud negatives are not to be considered very difficult subjects. But when we say this, it should be remembered that we do not apply the term "cloud" to all the beautiful and delicate varieties of the high-lying formations, such as the cirrus, the stratus, etc., but to those of more striking form, bolder outline, and greater contrast of light and shade, such as the cumulus seen in flat and rolling countries, or the "broken cumulus" drifting about mountain peaks, and partaking of the nature of ordinary mist.

Our reason for not wishing to speak here of the exquisite cloud-formations of high altitudes, is simply because we desire to treat this whole matter from a strictly photographic standpoint, and deal only with those forms of cloud that have hitherto been now and then successfully photographed. But let us say to those who like to work and experiment a little out of the beaten track, that time and study would be well bestowed on just these forms of the high-lying cloud-formations, because so little attention has been paid to them by photographers; landscape painters having monopolized the field. Here, indeed, difficulties would abound, but we believe that modern photography can cope with them, and give us new forms of natural beauty.

Confining ourselves then to the cumulus cloud and its modifications, together with the cloud-like forms often assumed by common mist, we shall still have abundant photographic material. Now, if we take out-door work as a whole, it will often happen that the clouds will arrange themselves in pleasing forms, so as to suit the composition of the picture fairly well. If this is seen to be the case when about to expose, all that is necessary will be to take care that the foreground gets sufficient time to give good detail, while the sky is shaded or shielded down so as to prevent over-action and obliteration of the clouds. If the clouds, however, do not present themselves so as to render decided assistance to the composition, the operator might either wait for a while, and, by closely watching the changes in shape, finally secure something suitable to his purpose, or if time is short (an excuse, by-the-way, far too common among photographers), he might purposely over-expose the sky somewhat, so as to blot out all cloud-form, and obtain uniform density. This uniform density, of course, could be afterwards improved in the ways already mentioned.

Those who have watched the beautiful changes in common mist among the hills, particularly just before or just after a storm, will see at once what a field here presents itself for photography.

The text-books and periodicals of our photographic literature contain ample instructions for the double printing of skies into prints. As we have before spoken of the taking of cloud negatives, we need hardly go over the matter again, further than to caution the operator to *keep the cloud negative thin, so that it will print quickly*, and yet to give it contrast enough to make an effective appearance. A short exposure on a well-lighted cloud, and a vigorous development, with perhaps intensification afterwards, will give the result desired. A number of these cloud negatives for double printing should always be at hand, and although it will be found far easier to obtain striking contrasts in the cloud-form when the camera is directed *towards the sun*, it will not do to rely upon this form of lighting exclusively. Some negatives should also be made *with the light* so as to suit subjects made with the light. This may seem self-evident, but we have frequently seen views made on large plates, and well-executed otherwise, where a heavy thunder cloud taken *against* the light was boldly double-printed on a view taken directly *with* the light; or worse yet, we have sometimes seen careless operators coolly print clouds *upside down*, the effect being most absurd.

In taking leave of this subject for the present, at all events, we would ask our readers to remember that it is hardly one of those that can be reduced to rule and formula. There is little or nothing of the scientific here, if we except a little study of meteorology, which might well be done prior to taking up the work of sky photography. This would familiarize the student with the forms, characters, elevations, and combinations of the clouds, and thus teach him what to look for, and at what times and places to find it. We hope that he would then consider all this merely as the starting-point for true artistic study with the camera.

The Origin and Technology of Photographic Chemicals.

FRANK H. ROSENGARTEN.

Third Paper.

As we saw, in the former paper, bromine is used in combination as salts, a few points descriptive of these are of interest. The most used preparations are those of potash, soda, and ammonia. The potash salt appears in regularly formed cubes, often quite large, white, and either translucent or opaque. The bromides of soda and ammonia are seen in granular form, white, and very similar in appearance to common salt. Bromine will combine directly with ammonia, to form bromide, when the ammonia is in solution, and then by simple evaporation to dryness, at a low temperature, the salt is obtained. But when bromine is added to potash or soda in solution, there is another and quite complicated mixture of salts produced. Part of the bromine becomes united as bromide, and the remainder as bromate. Taking the mixed solutions of these two bodies, which have markedly different chemical and physical properties, evaporating to dryness, and then exposing to very high heat, the bromate is converted into bromide, the oxygen in the bromate being driven off. Care must be taken in this operation, because the want of sufficient heat will only cause partial decomposition, and too high a temperature will cause great loss by volatilization. To avoid such complicated manipulation, the bromine can be converted into bromide of iron readily, simply by mixing iron wire or filings, and warming, bromide of iron is formed and hydrogen evolved. The clear green solution thus obtained is carefully mixed with a solution of carbonate of soda or potash, until exactly neutralized, when the iron is thrown down as a gelatinous carbonate of iron, and the bromine combines as bromide with the alkali. By careful filtration and evaporation, the needed reagent is obtained; in the case of potash, the solution is only evaporated till a pellicle is formed on the surface, and then permitted to cool slowly, when crystals form which, when dry, are anhydrous and permanent in dry atmosphere. Another method of manufacture is by combining hydrobromic acid with carbonate of the alkali. This acid is readily made by passing sulphuretted hydrogen through bromine mixed with water, the hydrogen combining with the bromine, and free sulphur is evolved. Great care and skill are required to free this from small quantities of sulphuric acid which occur from oxidation of part of the free sulphur. This acid, however, is quite stable, and, no doubt, could be used as a restrainer with neutral oxalate developer.

In addition to the bromides of the alkalies, we have those of the alkaline earths: lime, magnesia, lithia, and of many metals, such as cadmium, silver, iron, manganese, lead, zinc, also many organic ones.

No doubt in time to come some of these salts will be utilized in photographic work, and replace, possibly, the costly and uncertain silver salt, which, as we all know, is so fickle and, at best, difficult to rely on. What a field this is to explore! When photographic investigation is brought to a scientific basis, and thus far it has not reached that, there will, no doubt, be great revolutions from present methods. The substitution of some other vehicle than gelatine or collodion, the use of other salts than the silver compounds, and the application of other developers than pyro and ferrous oxalate. With the army of working photographers combined, having suitable appliances and working-rooms, each person giving his experience, there is no doubt great progress will be made, and new processes found to replace those now used so variously and accidentally. The effort now being made by the Photographic Society of Philadelphia, if supported generously, will, in the end, prove valuable to its members and the community, and shed lustre on its present reputation.

◆

Our Picture.

The first application of photography to book illustration dates back to 1844, when Fox Talbot, one of the discoverers of the art, published his "Pencil of Nature," a little work illustrated with twenty-four silver prints, made by himself. Talbot naturally thought his book would be the precursor of many similar volumes, and that a new field for supply of illustrations would be found in sun pictures, but his expectations were never realized. He has survived these pioneers, many of them having fallen in the sere and yellow leaf. However, it is not the fear of fading which has deterred publishers from using ordinary photographs as illustrations, inasmuch as it is now possible to produce beautiful work, probably as permanent as the printed text of the book itself.

Notwithstanding the popularity of platinum and bromide prints, their use for this purpose has been very limited, owing to high cost and slowness of production.

Even Woodburytypes, collotypes, and photogravures, although machine printed, are far too costly for general book and magazine illustration. The chief demand has always been for type printing blocks, because they can be inserted in type forms, and printed many times faster and cheaper than any kind of photographic pictures. The ordinary photo-engraving processes produce type blocks, but only from line or stipple copy; photo-engraving, in order to meet the requirements, must produce printing blocks direct from ordinary photographic negatives, rendering not only the black and white of the picture, but all the intermediate tones as well.

A great many experimentalists set themselves to the performance of this task, and although good examples were from time to time produced, all the various methods tried proved unsatisfactory, and it was left for Mr. F. E. Ives to fulfil the critical demand of the publishers by an entirely original method, known to the world as the "Ives Process."

Ives' original method, invented in 1878, was to take an inked Woodbury relief and to press it against grained or embossed paper. The higher parts of the relief were forced most strongly against the paper, and consequently crushed down the grain upon it, producing a more or less solid black. The lowest part of the relief did not touch the paper at all, and consequently left no mark upon it. The intermediate parts touched the points of the paper lightly, and they received a little ink, or partly flattened them, so that they received a greater quantity, thereby producing a stipple that was perfectly graduated from solid black through a coarse grain, growing gradually finer up to pure white. The picture in this first process was copied in the camera, or transferred directly to stone or zinc for the production of an etched block by any of the known methods.

The next improvement, patented in 1881, was to substitute a swelled gelatine relief for the Woodbury relief, and to take a cast from this in plaster. On this plaster cast the lines or stipple were impressed by means of an inked elastic stamp of V-shaped lines and dots, and this plan, Mr. Ives says, gives the operator considerable control over the effect. By flowing over the inked plaster with collodion, the ink picture was transferred to the resulting film, and after stripping this film off, a print was made on a dry plate. Other improvements followed, one of which was the transfer of the ink impression to a sheet of soft rubber, and thence to stone or zinc. Still more recent modifications and improvements have been made by Mr. Ives, but have not been published, because they do not concern the general public.

Meanwhile, other inventors were not idle, and several new or modified methods followed that of Mr. Ives; one of these, the "Meisenbach" (1882), proved a commercial success, and has been largely employed (under various names), because it is a quick and comparatively easy process to operate; but publishers complain that it does not give the uniform results and depth and clearness of shadows that characterize plates by the Ives process. Our leading magazine publishers appear to fully recognize the superiority of Ives' method, and a great many Ives plates are used in "Harper's," "The Century," "St. Nicholas," "Wide Awake," etc. Not only here, but in Europe, has it received the recognition of the highest authorities, and its popularity is such that thousands of plates are turned out every year, replacing hundreds of thousands of dollars worth of wood engraving. We have been favored by the Crosscup & West Engraving Co., of Philadelphia, with a specimen of this process.

The picture represents the Hospenthal, one of the most picturesque places of Switzerland. It is from a negative taken by Dr. Ellerslie Wallace during a tour through Western Europe some years ago. It is upon an albumen dry plate, made by Dr. Wallace himself.

Our readers will remember the delightful series of papers published in our JOURNAL last year on "Reminiscences of Travel by an Old-Time Amateur," and we are now pleased to present, as a souviner of the journey, so beautiful an accompaniment.

Not only is the negative a marvel of technical excellence, but the picture itself is a perfect gem. Here we have manifest that artistic perception of the harmony of the masses of light and shade, and the due relation of all the parts of the picture, which strengthen one's belief that photography can, by the guidance of an artist, give expression to the feeling for the beautiful in nature. The softness of the high lights, the luminousness of the shadows, and the wealth of gradation of this fine negative, we are delighted to say, have been preserved in the superb reproduction by Mr. Ives, and lastly, that all concerned may have credit, we shall give praise to the excellent press-work of Edward Stern & Co., of this city, by which all the good qualities of the engraving have been secured; for it must be confessed that improper printing of the block frequently mars the most conscientious and careful work of the photo-engraver.

On Red and Purple Chloride, Bromide, and Iodide of Silver; on Heliochromy, and on the Latent Photographic Image.

BY M. CAREY LEA.

(American Journal of Science.)

Photo-chloride by Action of Alkaline Hypochlorites.—Black or purple-black chloride is easily obtained by the action of an alkaline hypochlorite on finely divided silver, such as is obtained by reduction in the wet way. Commercial sodium hypochlorite may be used to act on it. It is to be poured over the silver, and after standing a few minutes, is to be replaced with fresh. After an hour or two this is again to be replaced with a new portion, which is to be allowed to act half an hour, to insure the total conversion of the silver. The product varies somewhat in color, is sometimes black, oftener purple-black. If the treatment with hypochlorite has been thorough, strong cold nitric acid of 1.36 sp. gr. extracts from it no silver. This reaction with nitric acid is important, as it shows that not only metallic silver was not present, but that the product contained absolutely no uncombined subchloride. For if any were present it would instantly be decomposed by the acid, in which one-half of its silver would dissolve. The action, therefore, appears to take place in this way: First subchloride is formed, part of this is further chlorized into normal chloride, which at once combines with other subchloride, thus taking it out of the further immediate action of the hypochlorite, and this goes on until an equilibrium is reached, and neither metallic silver nor uncombined subchloride is left, as is proved by the action of nitric acid. Alkaline hypochlorite, as will presently be shown, attacks uncombined subchloride very rapidly, the combined very slowly; by many days' contact, the quantity of combined subchloride is gradually reduced.

Prolonged treatment with hot strong nitric acid destroys all the varieties of photo-chloride. The time needed varies a good deal. A specimen of that obtained with hypochlorite required twenty-five hours' heating with acid of 1.36 in a water bath at 212° Fahr. to bring it to the condition of white normal chloride. Considering that cold dilute nitric acid instantly destroys freshly precipitated argentous chloride in the free state, this long resistance to strong acid at the temperature of boiling water must be considered most remarkable.

When the red or photo-chloride is formed with the aid of a ferrous salt or ferrous oxide, I prefer to boil the product with dilute H Cl to get rid of the last traces of iron, after a preliminary treatment with hot dilute nitric acid has removed silver and uncombined subchloride. The photo-chloride will sometimes even resist boiling aqua regia for a time.

Protected from light, photo-chloride is perfectly stable. Specimens obtained eighteen months ago appear to be quite unchanged.

When treated with ammonia, it is far more slowly attacked than the normal. The ammonia dissolves the normal chloride only. The union between the two must, therefore, be broken up, and this takes place slowly. The first action of the ammonia is to change the red or purple color to greenish-black, and then to slowly dissolve out silver chloride. Hours are required even with a large excess of ammonia. Whilst this is going on, if the ammonia is poured off and replaced with nitric acid, the original color reappears. If the action is continued sufficiently long, silver only remains, and dissolves readily in nitric acid. A little short of this, treatment with nitric acid leaves a black residue of dark chloride mixed with metallic silver. The dark chloride being insoluble in any acid, has led to some strange mistakes in a similar reaction which occurs in treating with ammonia silver chloride that has been exposed to the light. Even a theory has been had recourse to of a "passive condition" of silver. This passive silver is simply black chloride.

A specimen of purple-black chloride was treated with warm strong aqua regia until whitened by conversion of the subchloride to normal. By this treatment 2.563 grains of photo-chloride gained nine milligrammes, indicating the presence of two and a half per cent. of subchloride, or more exactly—

Subchloride	2.49
Normal chloride	97.51

This is not to be taken in any sense as representing a constant composition. The proportion of subchloride varies between certain limits, not only according to the method of preparation used, but independently of it. Another specimen of black chloride formed with hypochlorite gave figures that indicated a content of less than half of one per cent. of subchloride.

Photo-chloride by Reduction of Normal Chloride.—This is an excellent means of obtaining red chloride. The white chloride is to be dissolved in ammonia, and ferrous sulphate added, producing an intensely black precipitate. After standing a minute, the mixture is to be treated with dilute sulphuric acid until it shows a strong acid reaction.

The precipitate is to be first well washed by decantation, then boiled first with dilute nitric, then after washing with dilute hydrochloric acid, which must, of course, be thoroughly washed out.

The product obtained in this way is often of singular beauty. It might easily be taken for metallic copper. Sometimes it is as rich and bright in color as the copper obtained by electric deposition. Every one knows the richness and brilliancy of that form of copper, and I have seen it fully equalled by this silver salt.

The beauty of the color depends always on the thorough removal of any metallic silver that may be present, and still more on getting rid of every trace of iron. The boiling with dilute hydrochloric acid should be continued until, after thorough washing, a fresh treatment extracts no more, and the acid remains colorless in presence of alkaline sulphocyanide.

Instead of an ammoniacal solution of silver chloride, we may make a solution of any other silver salt in ammonia, and reduce it, in the manner just described, with ferrous sulphate. But in this case hydrochloric acid must be used instead of sulphuric after the reduction. This single reaction includes an almost endless variety of methods. The acid with which the silver was originally combined seems to be not without influence in the result; in some cases, for example, with arseniate and molybdate, the action of colored light on the red chloride seems to be somewhat modified. Silver phosphate, on account of the ease with which it suffers reduction, is very well adapted for this treatment.

Photo chloride by Partial Reduction of Oxide by Heat, and Treatment with H Cl.—This method has the advantage of avoiding all admixture of foreign substances, the last traces of which are very hard to get rid of, and seem to exert an effect on the color disproportionate to their quantity. Accordingly, the photochloride obtained in this way is very beautiful, the shades are from pink to copper red, and a tint resembling burnt carmine.

Heat may be applied to the oxide in either of two ways, long continued heat at 212° Fahr., or near it; or the change may be effected by roasting.

When slow heat is to be applied, care must be taken that the oxide does not carbonate itself, which it easily does superficially; this is an objection, because the carbonate, under these circumstances, yields white chloride with which the other becomes mixed. The air of a drying oven heated by a gas-burner is especially bad in this respect. I have seen a surface of oxide form a coat of yellow carbonate in a few hours in this way. (Most oxide that has been kept some time will effervesce briskly with an acid.) The method is uncertain, sometimes giving strongly colored products, and sometimes pale pink.

The oxide may be roasted in a shallow, flat-bottomed porcelain basin. With a very moderate heat, it changes from brown to black. When this is thoroughly accomplished, and before gray reduction sets in, the oxide is to be treated with H Cl. If this be done in the basin itself after cooling, and without dirturbing the position of the oxide, a curious variety of tints will be noticeable, depending upon slight differences in the heat affecting different portions.

Silver carbonate may be roasted in the same way as silver oxide, and yieids a similar product. By heat its color changes from yellow to black; it is probable that the carbonic acid is driven off at a lower temperature than that at which oxide is reduced to silver, and that with it escapes part of the oxygen. The residue is converted by H Cl into deep red chloride.

ACTION OF VARIOUS METALLIC OXIDES ON SILVER OXIDE.

If we precipitate ferrous oxide with potash, and add to this silver oxide—or, what amounts to the same thing, if we add to ferrous sulphate potash in excess, and pour over this silver nitrate solution—the silver oxide separated by the potash is partly reduced by the ferrous oxide, and when treated with H Cl forms red chloride, the intensity of the color of which depends, within certain limits, on the amount of reduction of the silver oxide.

Similarly, if we treat solution of manganous sulphate with excess of potash, and then add silver solution, we get an analogous reaction, except that it is much weaker, and heat is necessary.

With chromous oxide the action is still weaker, but evident. With cobaltous oxide it is scarcely perceptible without heat and long-continued action.

(*To be Continued.*)

On the Proper Time for Exposure of Dry Plates.

BY LIEUTENANT C. L. BRUNS, U.S.N.

(Read before the Society of Amateur Photographers of New York.)

Can a close approximation of the time of proper exposures be determined scientifically?

The object of this paper is to give briefly a history of some personal experience in this direction.

I would premise that the practice of photography is based entirely on variables, which is particularly unfortunate with the amateur, whose work is only occasional, and with subjects constantly changing. He, therefore, learns nothing definitely by his previous work; his experience is of but little service to him, as he is constantly confronted with variables.

To reduce the variables has prompted me to experiment upon the actinic effect of light. I have tried several plans, and finally adopted a very crude sensitometer, which, however, has served me very well.

The sensitometer referred to is albumen paper freshly prepared for each day's work. This involves but little trouble or time; a strip cut from a sheet of albumen paper, say one inch by six, put in a jar containing the sensitizing solution (nitrate of silver of some fixed strength) for an indefinite time, is drained and dried, and not to be fumed. Place the sensitized slip of paper between two flat pieces of wood bound together with rubber bands; pull the paper out to protrude say one-half inch. Expose this to the sun until it has blackened all it will, and call it actinized. Now pull out one-half inch more, expose it to the sun, and note the time. I find it convenient to stand back to the sun, or facing north, and place the paper on the ground, at a distance of four feet from the point where I stand, and maintain this as a constant, and then wait until the newly exposed paper reaches the color of the first, or is actinized, noting this time, which interval I will say is one minute. Suppose now I desire to take a copy of a picture in my room. I have here an ordinary plate-holder, so arranged that any portion of the sensitive plate may be shielded, while the rest may be exposed. In the dark-room I shield all but the lower fourth part of the plate; I then expose it in the camera, say ten seconds, and take the plate to dark-room, raise the shield, exposing this time two-fourths or one-half of the plate; returning to the camera, I expose 10 seconds, thus giving 20 seconds to the first fourth, 10 seconds to the second fourth, proceed the same with the third fourth, exposing 10 seconds, then the fourth fourth, or the whole plate, exposing a few minutes with cap on, or it need not be exposed in the camera at all. In the former, on developing, if the camera leaks, it will show on the fourth fourth; in the latter, then the dark-room lets in actinic light. Now the first fourth being exposed three times, each of 10 seconds, or 30 seconds; second fourth 20 seconds; the third fourth 10 seconds; the plate being developed will show which section was most favorably exposed. Assume this section to be the second fourth, or 20 seconds. We now arrive at the conclusion that when a piece of sensitive paper takes one minute to actinize, then say Mr. R.'s plate, registering sensitometer 16, requires 20 seconds for a proper exposure. On some subsequent occasion, I desire to make a copy of a similar subject. Expose a paper the time to actinize is two minutes. I know that with R.'s plate, registering sensitometer 16, when the paper actinizes in one minute, it should be exposed 20 seconds, and from the following proportion, the proper exposure of the plate of subsequent day is determined, viz.: 1 minute to actinize to 2 minutes to actinize, as 20 seconds (the trial exposure) is to the proper exposure, or 40 seconds, which is the time to properly expose on the subsequent day. Therefore, all that is necessary on the subsequent day is to focus and expose 40 seconds, and we have a properly exposed plate.

For outside work, using slow plates, follow the same procedure, but expose three plates. For economy, use small plates. Make exposures of sensitive paper before and after the plates were exposed, to be certain the conditions did not change. Obtain the time to actinize the paper, and the time of the best of these plates. This gives a positive condition for that plate and that character of subject. On a future occasion, by exposing a sensitive paper, the actinic condition of the light and the time of exposure is obtained by the law of direct proportion; that is, the time of exposure of sensitive paper to a certain actinic effect on the trial plate is to the time of a subsequent exposure of paper to an actinic effect, as the time of proper exposure given by the trial plate is to four, or the proper time to expose the plate on a subsequent occasion, the character of subject being considered similar. The character of subject may be determined to suit the individual taste; for instance, a marine view, clouds, foliage, bright sun-lighted scene, or scene entirely in shade. If trial exposures are made for each, and carefully noted, there should be no difficulty, by reference, to obtain the time of correct exposures.

For rapid work, I place great reliance on the proper selection of the shutter-spring. Its action should be uniform. It does not matter so much how fast it is, but that its tension should be constant. Fix the spring permanently. A rubber band is bad; it is deceptive, and subject to wide changes and irregularities. Graduate the time by the diaphragm, and not by varying the tension of the spring. In the trial exposures use, say ⅛-, ¼-, ½-inch stops. The areas of these are to each other as the squares of their respective diameters, and are respectively $\frac{1}{64}$, $\frac{1}{16}$, and ¼ of an inch. The amount of light that passes through stops is directly proportional to their areas, hence the ⅛-inch stop is four times faster than the ¼-inch, and sixteen times faster than the ½-inch stop.

Now proceed with the trial plates.

Interiors.—Expose the sensitive paper in the room on the wall directly in front of the lens. Make a trial exposure as explained under copying. Let the exposures be, say, half-hour apart, or what the experimenter may conclude as best. Note the time it takes the sensitive paper to actinize, and the time of the exposure as given by the trial plate, and then by the rule suggested you can obtain the time for proper exposures in any other interior.

In conclusion, I would recommend you to make a copy on the shielded system as applied in this plate-holder, and you will be more than pleased to note the effect of the developer and the results. You will also see how much longer the zone of proper exposure is than you believed. You can tell what the actinic difference is, whether your windows are open or shut in the studio, and the range of time of any particular plate by which a proper picture may be secured.

Remarks on Lieutenant Bruns' Paper.

BY D. H. WALKER.

To reach the maximum exposure any plate will stand, has been one of the difficulties in the way of all photographers. When you have put your plate in the holder, the first question presenting itself is: "What stop shall I use?" Next: "How long an exposure shall I give this plate?"

If you are in doubt, you ask your learned and experienced friend near by, and he puts his finger along his nose, looks wise, examines the sky as if he were in search of a comet, and then coolly suggests: "Well I guess (and it is all guess,) I'd give her say ten seconds."

Now your own idea has been two minutes' exposure. If you ask four different persons, all of equal skill, they will "guess" at a variance of from 50 to 100 per cent. Now how ridiculous this appears to be, and is. Here is a science based upon exact chemical laws, and yet we are constantly guessing.

How to overcome that part of the guessing which relates to the exposure of a given plate has been the subject of inquiry and experiment by Lieutenant Bruns and myself, with the object of presenting the results for your information and discussion.

Experiments made yesterday by us demonstrated that to actinize sensitized paper required 107 seconds. A Carbutt B plate (16 sensitometer) exposed in parts for two, four and six seconds, on development gave best results and clear detail on that portion which was exposed for four seconds. Thus we had the two constants, or non-variables, for that kind of plate, they being 107 for the paper, and four for the plates. Now these results are to be utilized as the basis of all calculations for exposure of such plates; and the process of arriving at the correct time for exposure on some other day, when the light may be different, will be as follows: say next week, on a dull day, I wish to make a correct exposure of a similar plate. To do this I first expose a piece of the sensitized paper as explained. Say it takes five minutes to thoroughly actinize it, which is equal to 300 seconds.

Now I have learned that this day it required 300 seconds to do what on another day requires only 107 seconds. I therefore make the figures to ascertain the required exposure to be given, to wit, as 107 is to 4 (these being the constants) so is 300 to the required exposure, and the answer is thirteen seconds. So that yesterday I would give four seconds' exposure, and next day, as per example, thirteen seconds.

With such experience as we have had, we feel satisfied this method is approximately correct. And, I am certain, as experiment has proved, that the larger the constants, the greater is the margin for correct exposure of the plate when taking a picture. That is, if the constants are ten times greater than those given, say 1,070 seconds and 40 seconds, the chances of correct exposure are increased in that ratio. An experiment made to-day with a new lens and camera showed that it only required 90 seconds to actinize the sensitized paper, and that a Carbutt B plate exposed seven seconds with the smallest stop (being $\frac{3}{32}$ of an inch in diameter) gave the best negative. The two figures being used as new constants, a further experiment was made by exposing the sensitized paper in the shadow of our working-room. After exposure of 18 minutes and 42 seconds, the paper showed partial actinization. As time was pressing (at 4 o'clock, P. M.), a piece of paper was taken into the sunlight, and was allowed to actinize up to an apparently similar extent, which required 20 seconds. At the same time a fresh piece of paper required 2 minutes in sunlight to become fully actinized. It will therefore be noted that the piece of paper exposed in the room, which had been partially actinized, if taken into the sunlight would have reached actinization in 2 minutes, or 120 seconds. And as it required 2 minutes to fully actinize, it had been exposed to within 16⅔ per cent. of complete actinization.

Multiplying this partial actinization of the paper (say 16.67) by 6, we show that it would require about 112 minutes, or 6,732 seconds to actinize in the shadow of the room. Again using these figures, we show that as 90 seconds required to actinize in full sunlight is 6,732 seconds, so is the time of proper exposure determined this morning, say 7 seconds, to the time of proper exposure this afternoon in the shadow, which is 8 minutes and 44 seconds.

To summarize these figures, we may say that the simple sensitizer adopted, that is, the silvered paper, will give a very near proximate of the proper time for exposure of any given plate when taken in connection with the standard time of actinization, which we call a constant, and the exposure of the plate mentioned, as in the shadow of the room, was done without any other than this simple means. There need not be any doubt as to the use of the stops; one single stop will do for all exposures, when once this constant is obtained with any one of the series. So far as we are able to judge at this time, we prefer using the pin-hole stop, which has given the results mentioned above. If any man ask, "Well, what of all this?" We can answer that it is an approximate method of arriving at the proper time for exposure of a given make of plates, and that, too, without any "guessing." In presenting this for your consideration, we are not unaware that others have experimented in the same direction, nor that the emulsions on plate and sensitized paper are chemically different, but we are anxious to broach the whole subject for your consideration, hoping it may lead to investigation and some useful results.

A Journey Through Arabia Petra with the Camera.

BY WILLIAM H. RAU.

(Continued from June Number.)

We sat in wonder looking at the beautiful Temple, and while doing so were startled by the noise of horses coming through the gorge. Soon there emerged six horsemen—Bedouin of the wildest and fiercest kind; for a moment we were in doubt, then Hadaya spoke to the Sheikh, who wore a red cloak, and, advancing, kissed his hand, asking for his father, Sheikh Salim. They at once dismounted and we were invited to mount their horses, which we did, riding on through the gradually widening gorge, passing tombs, temples, and the theatre en route, and dismounting in front of a cliff which was literally covered with excavations, bas-reliefs of tombs, temples, stairs, tanks, etc. Facing us were three very large temples, almost in a row; a Corinthian similar to the Kuzneh, but much worn away; the Temple of the Urn, with two tiers of built arches, and the Temple of the Three Tiers of Columns. The colors were the most brilliant blue, yellow, white, black, but the prevailing color, rich dark red. During an inspection of these tombs and temple, our party was gradually surrounded by Bedouin and Fellahin, of the most savage appearance; bold, rough, and dangerous. Our caravan with the tents and luggage did not arrive until 7.30, and when it did, it brought another crowd of followers, so that when we were ready for bed, we had a company of nearly 200 howling, shrieking, fighting Arabs. The din was frightful and would have lost us our rest, but we had experienced a month of Bedouin life, and felt a little at ease. We were in Petra, and could stay as long as we liked. Being tired, we all slept, but the howling of our Bedouin prevented a full night's rest.

Sunday dawned clear and bright, and we felt quite refreshed. We remained in tents all morning fearing some outbreak on our appearance. However, at noon, we began climbing about the rocks, making discoveries and selecting views. We really should have been making exposures, as this was the only good day we spent here. But a mistaken idea of the fitness of things had possessed the head of our party, and no work was done; this has many times since been acknowledged a mistake.

Our party of four, consisting of E. L. Wilson, M. Douglas, P. Birnie, Wm. B. Ogden, of New York, and myself, were followed closely by the suspicious Bedouin. We entered the broad open area, on which was built the city proper, and saw immense masses of stones, columns, excavations, and mounds of pottery; on one of the latter we secured many choice bits of ancient pottery. I found a complete lamp, small but perfect, roughly ornamented, and the top of another, decorated with an obscene picture, similar to those of Pompeii. We then climbed a gorge which was literally covered right and left with excavations, with some attempts at masonry, steps cut in the rocks rendered the ascent easy; gutters beside them let the water from the cliffs run into cisterns cut in the rocks; everything showing taste and immense labor. In fact, an uninterrupted stairway is formed through the different windings up the gorges. We found a tomb with a portion of four columns arched, and a stair leading up one side and over it to a tank, which was formed by walling up the end of the gorge, thus making a cistern, into which the water was led; in this was growing a fine, large tree. Near by and without any thing to indicate it, we found a tomb, the interior of which was rich in its excavation of fluted columns, this esquisite tomb now serves as a stable for the herds of the Bedouin. Some distance further on we came to a Sinaitic inscription on the flat side of the rocks, which we could not read. We arrived at the top of the mountain on one side of the Basilica of a fort or Citadel, it is in ruins—only the corners standing, and is built of stone, uninteresting, except so far as it affords an explanation of a small pyramid, which was made by the workmen, who; when quarrying the stone from the nearest matrix, left a shapeless mass standing, as if to mark the height of the rock from which they had taken their materials. Climbing to the fort, we see beyond us an altar, during the examination of which we see, still further, and on the top of the rocks and excavation, bowl-shaped and with a gutter leading to a tank, to which three steps led up. No former traveler has mentioned having seen this.

The honor of this discovery belongs to Mr. Birnie, who first saw it. Near by a square deep tank was partly filled with water; no animal life was visible.

On returning to camp, we found the crowd of Bedouin and fellahin had increased considerably, in fact we were surrounded, and matters really began to look serious, there was a constant demand on our dragoman and cook for money, tobacco, rice and food—mainly coffee. On leaving

Suez for this desert trip, it was stipulated that to enter Petra would cost $1000 above the regular price, this was to cover the blackmail, Baksheesh, and I doubt if our dragoman had any of that $1000 left after we got out of Petra. While the exactions were not always great, they were constant. It caused our dragoman, sleepless nights during our stay, and tired and worried him until he was desperate. Sunday passed and that night was one of unusual noise and excitement, horses would fall over the guy rope of our tents and cause confusion, and the gangs of devils would start discussions and quarrels in the tombs and caves behind our camp until wearied we finally slept.

Monday morning dawned bright and clear, and we started for the necropolis on horses belonging to the Bedouin (for which we paid $30.00), and with a guard of twelve mounted Bedouin going back through the gorge of the Sik, all seemed to promise well. We reached the curious tombs and made a number of exposures on them, everything had to be done quickly, as the bright brass work on the camera and lenses excited the cupidity of the natives, and it is well to get through promptly. We made a picture of the guard, arranged in cavalry order, with a background of red and yellow rocks, which was rather picturesque. We next made our way to the entrance of the gorge where we could command a view, showing the Arch thrown across. Again we mounted our horses and rode slowly through the gorge, making several views as we passed through, although the conditions for success were against us. But the choicest view we secured as we emerged from the Sik looking out through the narrow entrance, and showing the fine front of the Khuzneh, on emerging from the gorge, we made several 8x10 and smaller views of this fine temple and then arranged the same groups of Bedouin on their horses in the entrance to the gorge, the same as they appeared to us the previous Saturday. They made a picture which is very dramatic, with their spears 15 feet long stuck in the ground and steadied with the right hand. During my work here it was necessary to keep a constant watch on everything we had, as the Arabs steal anything they get hold of.

On our way back to camp, we secured a number of very choice pictures, showing the cave tombs, temples, and cliffs, and soon reached the theatre, the most remarkable piece of excavated work here. Its vast amphitheatre contains 33 rows of seats, accommodating 3,500 people, and is in a fine state of preservation. The sight of this grand and desolate place recalled the great race that must once have enjoyed themselves here. Now only the wandering Bedouin, who does not understand nor appreciate, roams over its deserted seats. Several fine general views can be had from the top rows of the seats. Looking in any direction, in fact, one is confronted with many hundreds of tombs and habitation of the ancients. The gorge near here is quite narrow, and opened out towards our camp, which was 300 yards further on. Leaving the theatre, we made a series of views from the camp in every direction, and while thus engaged, caught Sheik Salim and his Staff coming out of a cave opposite. They stopped long enough to get a picture, although by this time the wind was strong and the sky becoming overcast, made the work done after this doubtful. I waited as long as 25 minutes to secure a picture of the Temple with the Urn, and two-arched terrace. This magnificent temple was in an elevated position, and could be seen from almost any part of the open area of the city proper. It had a terrace of two-storied arches, and on a level with the terrace, a gallery extended along either side, cut in the solid rock. Five columns originally supported these galleries, but that on the right had but one standing, and that almost eroded to falling by the action of the torrents. The colors were nowhere more brilliant than in this Temple of the Urn. Description will not do them justice, only an artist with colors can give any idea of the variety and blendings. Further along to the left in the same cliffs are a number of smaller bas-reliefs, tombs, and monuments, then a large Corinthian structure, excavated in the rock, a rather bad copy of the Khuzneh. It is in a bad state, owing to its very exposed position, as is located on a turn in the line of rocks. Next to it is a tomb with three tiers of columns. A massive flat front also excavated as far as the third story, where the rock falls away, and masonry used to complete the structure to the desired level. It contains four doors, each an entrance to a chamber, and has quite a large, flat terrace in front, facing the open space where the great city was built. My work was difficult here, owing to the wind, clouds, showers, and troublesome Bedouin who constantly followed us.

On our way to the gorge we desired to make a panoramic view of the cliff, containing the three large and many smaller excavations, We had but two 8x10 plates, unused in the holders, these I repeatedly cautioned the member of our party who occasionally carried them to hold horizontally, as the weight of the plates caused the septum to slip out when carried vertically, but he evidently was so worried by the ever increasing trouble that he overlooked my injunction, and lost the only chance of properly showing this really fine view, as a stereoscopic picture which we did attempt was too short in proportion to its height.

We next turned towards the gorge, up which we had prospected on Sunday, and made a number of the most important subjects, and finally reached the summit of the cliffs, where the Altar to Baal is located, using the last plate on that curious bit of excavation. We could hear the shouts and noise of the quarrelsome Arabs coming up 1000 feet from a camp below. We descended through another gorge which was very steep and dangerous, as the stairs of the ancients were washed away in many places, at last reaching our camp quite tired and played out with work and excitement. Although tired, it was necessary to unload my plate holders, reload them and pack for the morrow, strapping everything securely in the leather cases, and keeping an accurate register of every plate, such as the title time of exposure, stop lens, number on box, letter of the tin case, and every other detail to identify each one of the 2000 plates carried with us, this necessarily made me the last one in the party to get to bed. However, it made no difference when we went to bed, as far as the hope of sleep was concerned, that being almost impossible, owing to the shrieks and shouts of our friends, the Bedouin.

Photographers' Association of America.

As the time approaches for the holding of the Eighth Annual Convention of the Photographers' Association of America, the question naturally arises: "What are the prospects for success?" In answer I desire to say that the outlook is most promising, and a grand success is assured.

Communications are received daily from all sections of the country displaying a remarkable interest.

The arrangements of the Executive Committee have met with universal satisfaction, and the most excellent and liberal provisions made for the encouragement of exhibitors is stimulating photographers all over the country to the most active efforts in preparing specimens of their work for competition.

From observations which a recent extended trip has enabled me to make, and in conversation with photographers throughout the West and South, the greatest satisfaction is manifested at the new arrangement of class competition; and, from the extensive preparation of work for the convention, noticeable in a large proportion of the galleries visited, a most remarkable exhibition of photographic work may be expected.

I have received promises of exhibits from many photographers in Colorado, California, Texas, Louisiana, Georgia, and Tennessee, and the probability is we shall be favored with some very beautiful studies from these localities. This, added to the usual magnificent displays from the Eastern and Middle States, cannot fail to make an exhibition surpassing all former conventions.

The two medals offered for foreign exhibits will doubtless induce many British and European photographers to make displays, which, judging from former foreign exhibits, will afford much profit and pleasure to our members.

The awards will consist of thirty-three (33) medals in all, comprising one grand prize, diamond badge; eight gold, fourteen silver, and ten bronze medals.

The grand prize, diamond badge, with four gold and four silver medals of Class A, offered for the best exhibits in portrait photography, will give an unusual incentive to those ambitious to aim at the highest, to come to Chicago with fruits of skill and labor. And the race for the diamond badge promises to be the most interesting of any competition in the history of our association.

For those with facilities for making large contract work, two special medals are offered, which ought to induce many to enter for Class B.

At former conventions many complaints have been made that the photographer of moderate means, and living at a great distance, had not a fair chance in competition with those capable of making extensive exhibits, the general attractiveness of which was usually greatly augmented by expensive and elaborate display of frames. This objection is entirely obviated by the rule which requires all competing exhibits to be displayed without frames or glass.

Class C, which provides for ten bronze medals, restricts the competitor to 24 cabinets, and as those competing in this are debarred from any other class, it afford an opportunity for those who do not wish to make expensive exhibits to win recognition for the merit displayed in their work.

Intending competitors will be furnished with necessary blanks by applying to the Treasurer.

Mr. Gayton A. Douglass, Committee on Transportation, has secured exceedingly low rates. Where fifty or more can rendezvous at the some point, and purchase their tickets at the same time, the rate will be one fare for the round trip.

It is hoped that the stock dealers in the large cities will interest themselves in getting the necessary number to meet at prominent points. If these places of meeting are made known to photographers in the vicinity, or even within a radius of a hundred, or a hundred and fifty miles, accompanied with requests for replies from those intending to go to the convention, the number can be ascertained beforehand, and save any trouble at the last moment.

In case the required fifty cannot be got together, a rate of fare and a third will be required, the person buying a first-class ticket to Chicago, and, at the same time, obtaining from the ticket agent a certificate showing that full fare has been paid; on presentation of this to the Secretary at Chicago, it will be signed, with which a return ticket can be obtained for one-third fare.

In addition to the Association Prize, the following prizes will be offered for competition.

1. One Silver Cup, made by Tiffany, New York, value $250, presented by Blair Camera Company, Boston.

2. $650 offered by the Eastman Dry Plate and Film Company, Rochester, N. Y.

3. Two Air Brushes, value $100, offered by the Air Brush Manufacturing Company, Rockford, Ill.

4. $100 offered by E. & H. T. Anthony & Co., New York.

5. Two Morrison Lenses, value $250, offered by Scovill Manufacturing Co., New York.

6. $100 offered by Stanley Dry Plate Manufacturers.

7. Two Beck Lenses, value $160, offered by W. H. Walmsley & Co., Philadelphia.

And now, brother photographer, what are you going to do toward insuring the success of our Eighth Annual Convention? Have you decided in which class you intend to compete, and are you keeping this in view in your every-day work? If not, rest assured it will pay you to do so.

Aside from the pleasure and gratification of winning medals of merit, the improvement in one's work which invariably follows the extra effort put forth under convention stimulus, will well repay, in the increase in business occasioned by the higher standard of work, all the extra labor it may have entailed.

It is not difficult to pick out the convention photographer from among his non-convention neighbors, and the wonderful improvement in the work and business prosperity of hundreds of our members should lead others to emulate their example.

Let us now have a grand rally at Chicago.

Fraternally,
H. S. BELLSMITH,
Secretary P. A. of A.

Chicago Convention P. A. of A.

RULES CONCERNING EXHIBITS AND COMPETITION FOR PRIZES.

The rules adopted for exhibits of photographs in the Art Hall, and competition for Association and private prizes, have been modified to stand as follows :

"All exhibits competing for Association prizes must be without frames or glass. Pictures may be fastened to boards covered with cloth or paper, and a neat moulding, not exceeding one inch in width, may be put around the edge of board to give a finish.

No signs of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7x12 inches in size, and to contain only name and address of photographer whose work it represents.

This shall not prevent the use of card-mounts with the photographers address, and any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

No pictures will be allowed in the Art Hall that have any marks indicating what plates, lenses, paper, etc., were used.

Exhibits conflicting with this rule may be displayed in the Stock Dealers' Department, to which above rules do not apply.

Executive Committee P. A. of A.

Railroad Transportation to Chicago.

PROVIDENCE, R. I., July, 12, 1887.

THOS. H. MCCOLLIN:

In reply to your telegram, just received, would say, while at New York last week, I was promised by Mr. Flemming, certificates and circulars in a few days. I wrote that gentleman yesterday to hurry up, as inquiries were pouring in, and the proper answer would be a certificate. We are compelled to wait the pleasure of the railroad officials. However, as soon as I get them I can forward to each dealer such number as they may require for their friends. I enclose a circular explaining the whole matter.

Yours respectfully,
G. M. CARLISLE.

Full fare going, one-third for return.

INSTRUCTION REGARDING THE ISSUE AND USE OF RETURN CERTIFCATES.

The Secretary of the convention or association, have arranged special fares with the lines interested, through the Trunk Line Passenger Committee, will make requisition on Wm. Flemming, Secretary, No. 346 Broadway, New York, for the number of blank forms which are likely to be required for the accommodation of those who will attend the meeting and entitiled to the benefit of the arrangement. The Secretary of the Convention will issue them *in blank* only to parties entitled to the concession, in advance of their departure for the meeting.

The stubs should be filled with a memorandum of the name and address of each party to whom the forms are sent, and left in the bound book to be returned promptly with those unused, after the issue has closed in each case. These forms are consecutively numbered, and should be issued in numerical order, commencing with the lowest number.

The delegates to whom they are issued will *sign their names in the presence of the ticket agent* from whom they purchase their going tickets, on the line following the words "I certify," and obtain thereon the certificate of the ticket agent that they have paid full fare, with a description of the route of the ticket. This is highly necessary on the part of the delegate, as the agent's certificate will indicate that full fare has been paid for the going passage, and that the delegate is therefore entitled to the special fare on return. It will also determine the route by which the return tickets should be issued. These forms, when properly filled and certified by the agent at the starting-point and the Secretary of the organization at the meeting, will be honored by the initial lines at the place of meeting which have agreed to accept them, for continuous passage return tickets. *Ticket agents will be instructed that the reduced fares will not be available under any circumstances, unless the holders of these certificates are properly certified as above described.*

The *certificate is not transferable*, and the signature affixed at the starting point, compared with the signature to the receipt, will enable the ticket agent to detect any attempted transfer.

LIST OF ROADS WHICH WILL ACCEPT RETURN TICKETS ISSUED UNDER THE CERTIFICATE PLAN.

Baltimore and Ohio (East of Parkersburg, Bellaire and Wheeling); Baltimore and Potomac; Buffalo, New York and Philadelphia; Buffalo, Rochester and Pittsburgh; Camden and Atlantic; Delaware and Hudson Canal Co.; Delaware, Lackawanna and Western; Fitchburg; Grand Trunk; Lehigh Valley; New York Central and Hudson River; New York, Lake Erie and Western; New York, Ontario and Westesn; Norfolk and Western; Northern Central; Pennsylvania (except locally between Philadelphia and New York); Philadelphia and Erie; Philadelphia and Reading (except locally between Philadelphia and New York); Philadelphia, Wilmington and Baltimore; Rome, Watertown and Ogdensburg; Shenandoah Valley; West Jersey; West Shore.

REPORT OF THE HOTEL COMMITTEE.

The Palmer House will give a rate of $2 50 per capita per day, when more than one person occupies a room. For one person in a room $3.00 per day. Rooms on the European plan, when two or more occupy same room a rebate of 25 cents per capita.

The Clifton House will give a rate of $2.50 per day.

The Grand Pacific Hotel, the Lindell Hotel, the Sherman House, the Tremont House, will make a reduction of 50 cents on their regular charges, but photographers on registering their names at these hotels, must take care to inform the clerks that they require the convention rates.

The Commercial Hotel.—When a room is occupied by two persons, a rate of $1.75 per day will be made; single room from $2.00

The Gault House, $2.00 per day.

ON THE EUROPEAN PLAN.

The St. Charles, 15 and 17 South Clark street, is the cheapest we put on the list. Rooms can be had here from 50 cents per day.

The Brevoort, from 75 cents per day.

The Windsor, from 80 cents per day.

There are a number of cheap hotels in Chicago; we do not think it necessary to name them because anyone wishing to be economical can take a room on the European plan from 50 cents per day, and in some restaurants get meals from 15 cents and upward. At Kinsley's, which is equal to Delmonico's, you can spend anything you like.

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THE Philadelphia Card Company, whose factory was located at Eleventh and Catharine Sts., in this city, has, by reason of the increased demand for the excellent quality of stock, already outgrown the capacity of its old building, and has accordingly erected a large factory in Landsdown, Pa., supplied with all the latest machinery especially designed for the manufacture of photographic card stock and printers and lithographers' cards.

The firm consists of Thos. H. McCollin, Geo. L. Pennock and Edward L. South, all of whom have secured, by their former connections, an enviable business reputation.

WE were lately favored with an exhibition of the working of Ives' Patent Folding Optical Lantern. This lantern was devised by the inventor for his own use, and is now placed on the market because some who have seen it in operation have expressed a desire to possess one. Its chief advantage over all others is that it can be folded up, forming its own carrying-case, which is only about one fourth as large as that of the most compact lime-light lanterns previously in use. It has lenses and jet of the usual size and best quality, and will project the regular 2⅞ in. lantern slides as perfectly as the largest and costliest lantern that has ever been constructed.

It is not expected that this lantern will suit all tastes, as it is well known that some prefer to use the largest and clumsiest of old-style apparatus simply because a great mass of brass-bound paneled and polished walnut or mahogany presents an imposing appearance, which is more pleasing to them than efficiency and convenience. The Ives lantern is well built, neat, strong, practical, and convenient to operate. It can be conveniently carried about in the hand, or in a small valise with lantern slides, or in a small trunk with lantern slides, ether saturator, folded screen and other requisites. It is the *only* lime-light lantern that can be used in this manner.

It can be fitted with attachment for long-fucus objective, if desired.

THE *Exhibitor* is the title of an interesting little quarterly magazine, edited and published by C. T. Milligan, 728 Chestnut street, Philadelphia. It is devoted to the subjects connected with the magic lantern and exhibitions, and contains many practical papers of value, both to the professional and amateur. Readers interested in the delights of lantern slide exhibits will do well to subscribe for the magazine, the only one on the subject published in this country.

THE *Keystone*, a Philadelphia monthly journal for the jewelry trade, contains occasional papers of interest to the photographer. It is now publishing a series of articles on photo engraving, illustrated with specimens of the processes employed.

July Bargain List.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	$4 00
1—Papier Mache Pedestal and Base, good order	2 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—Papier Mache Log, 2 feet long	2 00
1—8x10 Osborne Interior, new, light left of sitter	16 00
1—Pharaoh Position Chair	20 00
1—Seavey baby shell, with background, complete	4 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, lt. right	15 00
1—8x8 Seavey Ground, new	15 00
1—7x10 Rubber bath, covered top	3 00
1—5x7 Composition bath and dipper	1 00
1—12x16 Rubber tray, used for silvering	2 50
1—Iron centre camera stand	3 00
1—8x10 Interior ground	6 00
1—8x10 Exterior ground	6 00
1—8x8 Exterior ground	3 00
1—8x10 Exterior ground	6 50
1—8x10 Intesior ground	12 00
1—8x10 Plain painted ground	4 50
1—Bryant rustic gate	6 00
1—Seavy balustrade	15 00
1—Queen posing chair, drab velveteen	13 00
1—Sliding arm chair	6 00
1—Queen Anne baby lounge	10 00
1—Rustic corner chair	6 00
1—8x10 Perfect camera stand	6 00
1—14x17 Camera stand	12 00
1—Knickerbocker stand, with 14x17 top	12 00
1—Seavy balustrade	13 00
1—8 x 10 Osborne's interior background, new, lt. left	$20 50
1—8 x 10 Seavey's interior background, new, lt. left	20 00
1—8x8 interior background	15 00
1—8x10 Hough exterior ground	16 00
1—4x8 Osborne's tide slip	7 50
1—Iron centre camera stand	2 50
5x8 orange glass developing trays	40
Wood drop shutters	1 50
Negative boxes, odd sizes, each	20
1—Adjustable Am. Position Chair	12 00
1—Position Chair, rising back	8 50
1—6 inch Burnisher	5 00
4¼x5¼ Beveled Edge Cards, per doz.	10

Camera Boxes.

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	$30 00
1—5x8 A O Co. first quality box, 4 double holders, carrying case tripod with 1 5x6 Dallmyer R R Lens, used very little, good as new	68 00
1—4x5 Anthony's View Camera and 6 Holders	12 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder	6 00
1—½ size Ferrotype box, with three tubes	13 00
1—5x8 Stereoscopic camera, with matched pair Waterbury lenses, two holders and case	10 00
1—Card size portrait box, with Darlot tube and double holders	2 00
1—3¼x4¼ Bicycle Camera, holder and case	9 00
1—4x5 '76 outfit	15 00
1—5x8 Flammang Revolving Back Camera, Single Swing, Daisy Holder and Case	20 00
1—5x8 Flammang Revolving Back Camera, Double Swing, Daisy Holder and Case	25 00
1—10x12 Cone View Camera, Double Swing	52 80
1—11x14 New Haven Reversible Back Camera, Double Swing	44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing	46 00
1—14x17 Double Swing Portrait Box	40 00
1—8x10 Lakeside Camera, fitted with 4 ¼-size tubes	20 00
1—¼-size Camera, and wet holder	3 50

Lenses.

1—1-4 Size Darlot Gem Lens	3 00
1—Finder	2 25
1—Prosch Shutter No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched Pair imitation Dallmeyer Lenses, per pair	12 00
1—5x8 Dalmeyer View Lens	15 00
1—Woodward Condensing Lens	10 00
1—4x4 Darlot Globe Lens	25 00
1—No. 5 A 4x4 Voigtlander Portrait Lens	45 00
1—4x4 Darlot globe lens	20 00
1—5x8 Abendroth wide angle view lens	18 00
1—11x14 Zentmeyer combination	40 00
1—⅓ size L. W. Krantz portrait lens	12 50
1—½ size C. C. Harrison portrait lens	5 00
1—¼ size portrait lens	3 00
1—¼ size Harrison Portrait Lens	$5 00
1—10x12 Dallmeyer Rapid Rect. Lens	50 00
1—4x4 Dallmeyer Group Lens	50 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	40 00
1—4x4 Voigtlander Portrait Lens	25 00
1—Extra 4x4 Champion Portrait Lens	20 00
1—8x10 Harrison Globe Lens	10 00
1—8x10 E. A. View Lens	5 00
1—¼-size Portrait Lens	5 00
1—4x5 Waterbury Lens, with stops	1 75

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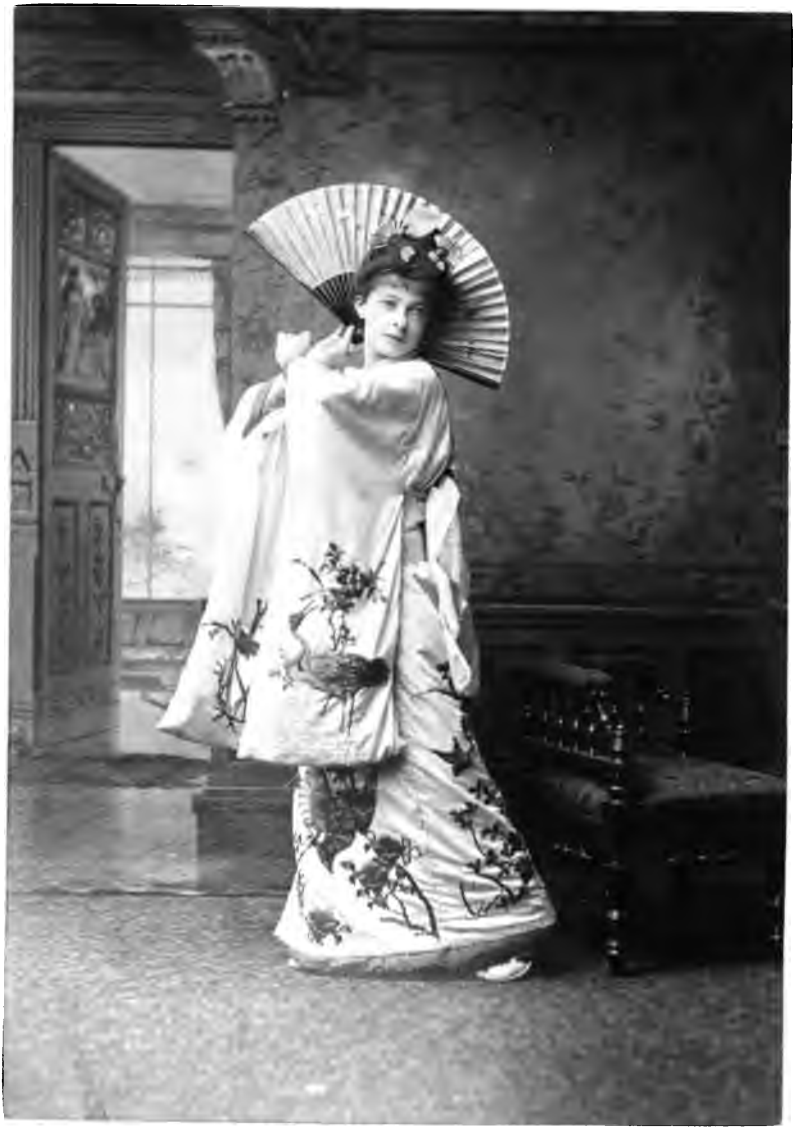

Negative by KUEBLER, Philadelphia.

PRINTED ON MORGAN'S, BRILLIANT ALBUMEN PAPER,

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, AUGUST, 1887. NO. 8.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
—PUBLISHED MONTHLY—
$1.00 per Annum, in Advance.

Dress in Photography.

BY JOHN BARTLETT.

In Shakespear's delightful play, "The Winter's Tale," when the peddler tramp Autolycus appears plumed out in the dress of the prince, the shepherd very naively remarks: "His garments are rich, but he wears them not handsomely."

It is much as Banquo says: "Strange clothes cling not to their mould but with the aid of use."

There are people who look awkward in any apparel, and there are people who, by a certain inborn gentility, make even the most ordinary attire adorn their figures with grace and dignity. Their clothing seems naturally to dispose itself into lines of symmetry, without the need of artful arrangement.

Sterne tells us: "That the sweet look of simplicity which sat upon Uncle Toby's brow assimilated everything around it so sovereignly to itself, and nature had, moreover, written *gentleman* with so fair a hand in every line of his countenance, that even his tarnished gold-laced hat and huge cockade of flimsy taffeta became him; and though not worth a button in themselves, yet the moment he put them on they became serious objects, and seemed picked out by the hand of science to set him off to advantage."

But the photographer might say these gentle folk of nature's own making are like festival days in the calendar, "thinly placed." Like the painters, then, let them adapt their art to every change of fashion, and still give us something beautiful, and not make fashion answerable for ungainliness or slovenliness in the disposition of figures and the accessories of dress.

Reynolds and Gainsborough, and the other masters of painting, turned to good account the eccentricities of their times, and their works are all the more valuable in illustration of the age in which they lived.

Reynolds, when asked how he could bear to paint the cocked-hats and powdered wigs of the fashionables, answered: "They have all light and shade." Could not the photographer answer in the same way?

Hogarth's costumes, despite their strangeness, are always picturesque in the rendering; often the interpreters of the individuality of the character.

Now-a-days photographers can hardly complain of even a peculiarity in dress. Our styles are by no means as marked or odd in appearance as those of the last century. They lend themselves readily to the picturesque, and may be made to contribute much to the effect of the composition, because fashion is not so arbitrary in its selection as it used to be. It is controlled more by the principles of art, and springs more directly from the demands of utility and comfort.

Nowhere does Raphael show more admirable taste than in the dressing of his figures. He thereby adds grace to grace; yet there is very little of the classic in his compositions. His people are the actual men and women of his time, full of youth, vigor, and beauty. It seems as if his figures had walked from his town right into the canvas, so fresh and natural are they.

Our modern life, too, is full of artistic realities, and our painters are beginning to open their eyes to the beautiful in things with which they themselves are intimately related—finding pictures in our drawing-rooms and parlors, in our workshops, in the streets, in the busy crowd, in frock coats and flounces.

If one were to judge from the work of our most celebrated photographers, the conclusion might be reached, that sufficient attention is not given to the value, or rather the necessity, of the artistic disposition of costume and drapery, although much care is shown in the modulation of the light upon the face, and skill in the technique. "These, ye ought to do, but not leave the others undone."

We recently saw a most excellent portrait of Mrs. Langtry spoiled by the careless management, or perhaps total neglect of management, both of the garment and the accessory hangings, which, if properly considered, would have heightened the effect, but they were discords only, destroying the harmony of the picture, for which even the inborn grace of the superb model was not able to atone.

The folds of a dress may make or mar a portrait. Are they a thing to be lightly considered?

It is not possible to give rules to guide in the arrangement of drapery. There is no such thing as the equation of the curve of a fold in a satin gown. Its subtility refuses to be reduced to a mathematical formula. It is altogether a question of taste, and one can only direct its cultivation by impulses from the works of the painters.

Rubens, Teburg, Maes, Jan Steen, and other masters of the Dutch and Flemish schools, delight in the delicacy of light and shade in the drapery of their pictures. Study their works from engravings.

As a perception of what is false, is in reality a step towards the knowledge of what is true, the excuse may be pled, where rules cannot be given, for pointing out some of the incongruities in dress which are courted by the photographer, not thrust upon him by necessity, and we may suggest the means of toning down the occasional absurdities of fashion, or whimsicalities of sitters.

We are indebted to the antique for our standard of human beauty of form, and for a marvellous conception of drapery.

The close adherence of the garment to the limbs, revealing to the imagination the ideal from beneath, is truly poetry in stone; but the attempt which photography sometimes makes to simulate statuary by posing and clothing in a classic style human models, is not only sensational, but ridiculous. It is altogether out of its province. It is too realistic in its rendering ever to suggest the plastic in art, notwithstanding, like sculpture, it depends for effect much upon the subtilities of light and shade.

For conception of beauty in drapery, photographers, as we have said, should look to the painters; should study from the works of Massaccio and Giotto; take suggestions from the flowing robes of Titian's "Assumption;" Da Vinci's "Mona Lisa;" from the splendid brocades and satins of Paul Veronese, Rubens, and Velasquez, and not try to make Galateas, Dianas, and Psyches instinct with life and animation, clothed in tissue, mounted upon wooden blocks painted white to counterfeit marble. Photography betrays too faithfully texture ever to hope to deceive by any artifice, or to delude the imagination. How much more beautiful and appropriate the drapery of real life upon real people.

What grace may be added by length of line in a robe to an attitude in itself graceful, and how often is grandeur thereby imparted to the most ordinary posture. There is an elegance in the long, flowing lines of a lady's habit surely, more becoming to her native grace than the unnatural contortion of crumpled tissue-paper.

Our renowned beauties who, like Cleopatra, have by their charms "taken the world's great hand," show their grace only to advantage when adorned in garments suited to women of flesh and blood.

The mania to be photographed in flimsy garments with gauze wings, like Psyche, is invading the staid ranks of society, and maidens *en embonpoint* fail to appreciate the incongruities between their avoirdupois and the butterfly wings intended to elevate them to the empyrean.

We know of one case where a fond mother insisted upon having her two little boys photographed like Raphael's cherubs, despite the protestations of the good-sensed photographer. It was done. There they are, with their eyes up-turned towards heaven, as if imploring a kind Providence to pity them and send the ravens with garments to cover their limbs.

A favorite, but ridiculous, method of disposing of the long train of a lady's dress, is to huddle it up in a bunch around the feet, as if in dread it would not find accommodations elsewhere in the picture. This part of a woman's apparel is capable of such a variety of pleasing arrangements that it seems only a perverted ingenuity could make such a disposal of it. The train frequently serves the purpose of breaking the floor line of the picture, and thus really becomes in itself a line of beauty contrasting with other lines.

The old masters sometimes had to deal with ungraceful subjects, imposed by dictates of fashion or whim of the patron, and it is advantageous to learn their plan of treatment.

There is a whole-length portrait by Van Dyke, representing a lady in the dress of the time. When examined closely, the garment is found to be ungraceful in itself, and not contributing to the good effect of the picture. The great painter has, however, neutralized the ungracefulness by a judicious management of the background. By means of a light ground opposed to the light side of the dress, and by help of a curtain which catches and emphasises the light near the figure, he has made the effect of the whole picture full and rich to the eye.

In a full-length figure, a perfectly plain background is difficult to manage so as to give a proper atmosphere, and prevent the figure lying flat upon the surface. The value of drapery will, therefore, be appreciated, and its relation to the dress become of the greatest importance. The background determines where the figure should be relieved, and on judicious management of the drapery, both in the hangings and in the dress, everything depends. Moreover, the ground, with its curtains, etc., may be useful in making distinct, or in obscuring, certain parts of the figure, as we have seen in the picture by Van Dyke. Now, if the form portrayed is beautiful in itself, it may be seen distinctly, but all angularities must be lost in the ground. Often the picture is made more effective by losing the darker side of the figure in the still darker background, and this dark side may very well be the side with defects.

But we shall wander off, and have our subject lost in the background. We will, therefore, conclude with a few hints for selection or adaptation of material most suitable for drapery.

The texture and the color of drapery are the chief points to consider in selection. New stuffs are apt to be harsh and stiff, and to give angular, unpleasant lines. Soft woolen goods are especially adapted to photographic drapery. Cashmere is rich in its beauty of folds ; alpaca, of good quality, is flexible and yielding, and India muslin, without stiffening, readily falls into the most pleasing lines. Madras curtains offer many inducements, both by reason of delicacy of texture and the richness of decoration.

The photographer cannot depend upon his fine artistic eye for color in judging of the effect of drapery. He must ignore color in considering the ultimate effect produced by light and shade. White and blue some years ago were regarded as the bane of photographers. They do not seem to offer the same trouble now-a-days. We have seen most beautiful photographs in which the figures were dressed in white satin or white lace, but the work was from the masters of our art, and we who are less skilled, if we can have any selection, had better choose drapery a little subdued in tint. A weak infusion of coffee or tea is useful in toning down the glaring white of fabrics.

However, we are not permitted to steep the costumes of all our sitters in infusions, and it may be well to know how to overcome the harshness in the negative from the dazzling white robes of those who will not adapt their costume to the exigencies of our profession. A mass of white drapery impresses itself strongly upon the sensitive plate; therefore, if a strong development is used, the building up of the image will be so rapid that the fine half-shadows will be altogether lost, and we shall have a black and white picture. We must, therefore, use a slow development. The best method of proceeding is first to flow over the plate a developer which is weak, but so constituted that the accelerator (the potash or soda) is slightly in excess of the pyro; that is, reducing the pyro to the minimum necessary to carry on development, using bromide of potassium very cautiously, if we use it at all.

When the detail has fully come up, pour off this developer, and immerse the plate in another developer which you may have at hand, stronger than the first, and with the proportion of pyro and accelerator equal. The negative will now gain in intensity, the shadows will strengthen, while the high lights will remain soft and pleasing, and the whole negative will preserve its relative proportions of tones.

Mounts for Prints.

BY ELLERSLIE WALLACE.

For those who could make up their minds to study such an apparent trifle as the effects of different colors and styles of mounting-cards upon finished prints, we could not imagine a better school, nor a more interesting way of spending a few hours, than for them to be let loose in an establishment where the different styles of cards are made, and to have in their hands a few choice prints to try upon the various colors and qualities of the stock.

Everybody knows how much the effect of an ordinary picture of any kind is modified, either for better or worse, by the frame which it receives. This is quite as true of photographs as of oil paintings, but we desire, for the present, to try to interest the attention of our readers in that which must, in any case, precede the framing, and often, indeed, supply its place entirely; namely, the mounting of the print.

Of all the multitudinous varieties of photographic work produced at the present day, we may select portraits, landscapes (including architecture), and copies of paintings, etc., as requiring especial attention in this respect. In the case of portrait work as a whole, we should say that the size, style, shape, and tone of the print will be found to suit well certain mounts, while producing a decidedly bad effect upon others. Let us, however, except here all such as are intended to be preserved in albums; it will, of course, make no difference what style of card is used in this case, for the effect will then depend upon the page of the album, and the presence or absence of lines, tints, or other ornament.

In reviewing the various styles of mounts for prints that have come under our notice in the lapse of the past five and twenty years, we have always observed that the *worst* effect was produced by a plain white mount. It is quite true that a white card is as good as any other, if it is simply intended to support the print and keep it flattened out, but when we remember that the whole possible scale of tone in the picture must range between white paper for the high lights, and a rather impure black or deep brown tint for the shadows, we might even reason theoretically upon the importance of not bringing white, in mass, into direct juxtaposition with white as the high light of the picture. That this is perfectly true in practice, we need hardly say; but if anyone is inclined to doubt it, let him just take a large sheet of white paper and cut out a piece in the middle the size of any mounted print he happens to have at hand, and then lay it over so as to conceal the mount entirely. Our word for it, he will soon see the difference.

The bad effect produced by the white mount seems to be largely due to the fact of the high lights or whites of the print coming into contact with or very close to it, and may be entirely done away with by interposing a band of some neutral color, such as the well-known "India tint," between the edge of the photograph and the white card. Matters will be now quite changed, so much so, indeed, that if we were asked to name the most effective form of mount for a fine landscape or copy, or even, in some cases, for a picturesquely posed portrait, we should say the India tint on white. It is not always that the India tint can be had pure; it should be of a delicate buff-color, free from crude yellow or green, and not, as a rule, be very much larger than the print. As it is lithographed upon the mount, and is apt to be somewhat greasy, the mounter should always be instructed to wipe over the tint with a damp cloth or sponge previous to laying down the pasted print, otherwise the mountant will not adhere to the card. Prints made on plain white paper without artificial tint, will best suit this style of mount.

Colored card mounts have been very much used of late years, and it will be found that prints of almost any size or tone will do pretty well on such colors as "tea," "primrose," or light buff, and, perhaps, on "dove" and brown. Where black or dark colors, such as bottle- and myrtle-green, chocolate, etc., are used, the print should be trimmed nearly to the full size of the card, so as to leave but a very narrow margin; for if a wide margin be seen, it will, so to speak, throw the whole affair *into mourning*, and have much the effect of a wide black band on a hat. Portraits of actresses in costume, eminent personages, etc., are now often seen on these colored cards, but we have also seen magnificent effects made with fine landscapes of large size on dark colored cards, in the panel style, with a plain gilded bevel edge. In this case, the print had been mounted on thin drawing-paper, then trimmed to size, and secured to the card by delicate gold-headed tacks at the corners, and along the edges. As the whole had been done with great skill and care, there was no cockling of the thin paper on which the print was pasted, and the appearance was strikingly rich and elegant.

A print mounted on a plain card, of say "tea" color, will not infrequently be improved by one or more black lines drawn around it. It will generally be found that the best effects are to be obtained by keeping the lines fine, in no case exceeding one-sixteenth of an inch in width, and letting them follow the shape of the print itself, no matter what the shape of the mount may be. It will be best, also, to keep them tolerably close to the edge of the print, say from half to one and a quarter inches, depending upon the size. Sometimes a double, instead of a single, line may be thus drawn, and a series of two or more sets applied. The corners where the lines meet may either be square or the lines may each be continued on a short distance, so as to make a cross. In some cases, a neat gold line will have a pretty effect, but, as a rule, the less gilding about the mount the better.

The color of card to be selected will depend on the taste of the photographer, but it may be well to caution him against those containing even a small amount of rose-color or blue—that is, for silver prints—for the whites will always look yellow and faded when contrasted with these tints. As we said in the beginning, if a trial can be made by laying a few good prints on the different colors and styles of cards, let it be done by all means, but in making the experiment, one color at a time should be selected and removed from all other colors, so that the eye may not be confused by a number of them. It will soon be seen how colors, when brought together, modify each other.

◆

The Origin and Technology of Photographic Chemicals.

FRANK H. ROSENGARTEN.

Fourth Paper.

The Alkalies.—After the haloids and silver salt, treated of in former numbers, come, with equal gravity, the alkalies, as essential reagents in photographic work, for they creep in at all corners of our processes. Soda and potash and ammonia are used either as such, or in combinations with acids, and at every turn they confront us. So they prevail in all our existence, and they are, probably, more universally distributed through nature that any of the elements, not excepting carbon.

Chloride of sodium is found essentially

in the organized life of plants and animals and in our food, and potash salts are as essential to the growth of cereals and sugar producing plants.

The great source of the alkali soda is this widely distributed chloride of sodium, which we find in the oceans, and, as rock, in parts of the earth, or by percolation of water into such rocks, in deep wells. In the solid state, called *rock-salt, fossil salt*, and *sal gemmae*, it is often found forming extensive beds, and even mountains, from which it is extracted in blocks or masses by mining operations. In Poland, Hungary, and Russia, in various parts of Germany, particularly in Tyrol, in Cheshire, England; in Spain, in various parts of Asia and Africa, in the island of San Domingo (where the deposit forms a mountain six miles long, from one-half to a mile broad, and from 400 to 500 feet high, and containing 96.79 per cent. of pure chloride of sodium), and in Peru and other countries of South America it is found. With the exception of a remarkable bed of rock salt in the island Petite Anse, in Vermillion Bay, on the coast of Louisiana, there are no salt *mines* in the United States, east of the Rocky Mountains; but there are innumerable salt springs, which either flow naturally or are produced artificially by sinking wells, found in Missouri, Kentucky, Illinois, Ohio, Michigan, Pennsylvania, Virginia, West Virginia, and New York, in which state the greatest production occurs of finished salt. In Virginia, on both sides of the Great Kanawha river, and in Michigan extensive wells are pumped. In Michigan the product of finished salt was over 4,000,000 barrels per year. The sea water of the ocean contains about 2.7 per cent. of common salt, and this product is called *bay salt.* On the Mediterranean Sea are the principal works for its production, as the water contains more salt there. The sea water is run into shallow dikes lined with clay and shut off from the sea. The hot rays soon evaporate the water and the salt deposits, and then more water added, and the process repeated until the quantity of salt warrants its removal.

To make an interesting résumé of this universal product would take more space than we have and yet it is fascinating, for but little change has been made in the processes of production from the earliest historical times.

Salt, or chloride of sodium, is white, without odor, and of a peculiar taste called saline. It is usually crystallized in cubes; but by hasty evaporation it often assumes the form of hallow quadrangular pyramids, or hopper shaped crystals, consisting of an aggregation of cubes, it is permanent in the air and of neutral reaction. It dissolves in 2-8 parts of cold water, and in 2-5 parts of boiling water, and almost insoluble in alcohol. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. When pure it undergoes no change in the air, but when contaminated with chloride of magnesium (bittern), as not unfrequently happens, it is deliquescent. In a pure state it consists of one atom of chlorine and one of sodium and has no water of crystallization, the common salt of commerce, generally contains insoluble matter and more or less of the sulphides of calcium and magnesium and their chlorides. Chloride of magnesium is found in it, sometimes to the amount of 28 parts in 1000. In use as food, it is a tonic in small quantities, in larger ones is a purgative and emetic. It promotes digestion and is essential to the animal economy. The chemists and metallurgists of this time are all striving to eliminate cheaply the wonderful metal sodium, but the strong affinity it has for chlorine makes the process difficult and costly. This metal is very peculiar and was discovered by Sir Humphrey Davy in 1807 by the aid of galvanic electricity, and afterwards produced in larger quantities by Gay Lussac and Thenard by bringing the alkali in contact with iron turnings heated to whiteness.

It is a soft, malleable, ductile solid of a silver-white color, and metallic lustre in a high degree, when protected from the air, by which it is quickly tarnished and oxidized. Its specific gravity is 0.97, being higher than water, and it fuses at 95.6° centigrade. When thrown upon cold water, it instantly fuses into a globule without catching on fire, and travels over the surface rapidly in different directions; but on warm water, it ignites and the water is decomposed, hydrogen is liberated and the oxygen combines with it to form oxide, and if simply exposed to the air, it undergoes a slow combustion which renders it luminous in the dark.

Intensification.

BY W. B. BOLTON.

(A communication to the Glasgow Photographic Convention.)

I heard an amateur remark a short time ago, "I never intensify," and felt inclined to retort. "Perhaps it would be better if you did;" but as I thought he might recognize the truth of the reply, and I did not wish to hurt his feelings, I refrained. It is all very well and very pleasant, no doubt, to be able to dispense with the operation of intensification, but who that values his reputation for uniformly good work will undertake to do without it altogether? It is absolutely necessary at times, even under the best of arrangements and the most careful working, and he who says, "I never intensify," is either a *perfect* manipulator—which I don't believe—or a careless one who takes little pride in his work, which is more likely.

But intensification has got into sad repute in connection with gelatine plates, owing to the liability of the intensified image to change, fade, or become denser with time and exposure to light. This applies equally to all forms of intensification, though mercury in some of its forms, has secured the worst reputation; still, I have little hesitation in expressing the opinion that the instability is not due to the method of intensification, but to the want of care in preparing the film to receive it. I have negatives which were intensified seven or eight years ago, by one of the most distrusted of mercurial methods, that are as good to-day as when newly done. I have on others every form of defect that can come from mercurial change.

Silver intensification, on the other hand, though the practically universal method employed with collodion plates has gained little favor with gelatino-bromide workers, on account of the liability to stains and discoloration of the film during the operation itself; while it has even been alleged that a gelatine film which has been touched by a solution containing a soluble silver salt is doomed to discoloration sooner or later. With regard to the liability to stains, I have frequently endeavored to show that it is far easier to prepare the gelatine film for silver than for mercurial intensification, but the difference is that a degree of carelessness that suffices in the case of silver to produce immediate change, will be tardy, though no less sure in its effect, when mercury is employed. The change produced in the one case, is, in fact, instant and complete; in the other deferred, gradual, and incapable of check. With silver and only moderate care, the change or stain may be but slight; with mercury, under similar circumstances, the utter ruin of the negative is only a matter of time.

As concerning the alleged after-deterioration of silver-intensified negatives, I can only say that I have some that were treated in that manner in the summer of 1880, and which, up to the present time, have exhibited not the faintest sign of any sort of change; and I will say further, in connection with them, that if there be any virtue in the oft-vaunted "wet-plate character," they possess it in a far greater degree than others treated in a different manner, or not intensified at all.

Silver intensification is, and always has been, my favorite, where permanency of result is required (if a negative be only required for temporary purposes, it is not worth the trouble), and recently I have modified my method of using it. Previously I have adhered to the formula frequently given in the *Journal* and *Almanac*, in which plain solutions of pyro, and of silver acidified with citric and nitric acids are used; but latterly I prefer to employ a solution of pyro, citric acid, and glycerine, with a separate solution of silver acidified only with nitric acid. The advantages of this method, are, that the solutions will keep indefinitely, or practically so, and that the glycerine causes the solution to flow readily over the film, enabling the operator to use a very small quantity by pouring on and off the plate, and thus economise silver, as well as saving the trouble of freeing the back of the negative from the dense deposit of silver that occurs when a dish is used.

I make the following stock solutions:—

A—	Pyrogallic acid	10 grains
	Citric acid	2 "
	Glycerine	1 ounce
	Water	1 "
B—	Nitrate of silver	60 grains
	Nitric acid	30 minims
	Water	1 ounce

For use, dilute one part of A with two parts of water, and pour on to the plate, leading to the edges with the finger or a camel-hair brush, if it refuse to flow alone One drachm of pyro solution mixed with two drachms of water suffices for a half-plate. When the solution runs smoothly over the whole surface, return it to the developing-glass, in which a half-a-dozen drops of B have been placed, and again apply the mixture to the film, keeping it in motion all the time. The density comes rather slowly, and should be borne in mind that it increases greatly on drying the negative, so that allowance must be made for that.

The only preliminary preparation the negative requires after fixing, is a thorough washing, but this may be supplemented by a minute or two's soaking in alum and hydrochloric acid as a final precaution. Removal of the hypo by means of eliminators, instead of by washing, is worse than useless; besides which, other substances, as the hypochlorites, hydroxyl, or even alum, when long applied, destroy the power of intensification. The negative, is therefore, better if simply washed. Should a slight yellow stain appear after prolonged treatment, it is easily removed after the operation is complete by a short re-immersion in the alum and hydrochloric acid, provided it is only silver stain and not hypo. The final dip in alum and hydrochloric should always be given, in order to destroy any free silver that may remain.

Intensification is more rapid before fixing than after; but, unfortunately, with gelatine plates, it is most difficult to judge accurately of the density. It may often happen, however, that when a very thin image has to be treated, the application of the intensifier before fixing will prove advantageous.

[Translations from the Foreign Contemporary Press, by E. W.]

Rapid Printing of Positive Proofs by means of Bromo-Albuminate of Silver.

One of the most interesting questions in behalf of the amateur photographer at the present day is the rapid printing of positive proofs either on paper or on glass, in the form of transparencies for the lantern or for the window.

The results obtained by us in our special studies of the different papers and sensitive films prepared with gelatino-bromide of silver, gelatino-chloride, etc., have shown what is to be expected from them in the advance of the industrial arts.

The amateur who is eager to ascertain the value of a negative that he has just finished, can now also have his positive proof within a short time after developement, thanks to the new process.

The professional photographer can now print by night as well as by day, and so satisfy his customers by furnishing proofs in a very short time. The process now to be described will give prints rivalling in brilliancy and beauty any hitherto obtained by the use of silver salts.

During the dark weather liable to occur at any season of the year, and which is almost continual during the winter, it is no easy matter to print a sufficient number of proofs in a very short time. By using the following process, we have been able to print very rapidly and without the slightest difficulty in unfavorable weather.

Paper is floated on albumen containing 2 grammes (31 grains) of bromide of potassium to every 100 cubic centimètres (3½ oz. fluid) of albumen, and sensitized on a silver bath of 15 per cent. strength. It is then carefully washed in repeated changes of water and dried.

Under a negative of moderate density, a few seconds exposure with the alkaline developer given below, or with ferrous oxalate as used for gelatine plates, will give proofs as fine as those obtained by the process now in vogue.

After either method of developement,the proofs are fixed and washed in a manner similar to papers prepared with chloride of silver (albumen and plain papers). If very rich tones are desired, they may be regularly toned either before or after fixing, the fixing being done with hyposulphite of soda (15 per cent. solution), or sulpho-cyanide of ammonium (30 per cent. solution). This latter is *very poisonous.*

Having succeeded well ourselves with this process in dark weather, we hope that it may prove serviceable to those compelled to work in a poor light.

Developer (Max Boelte in *Phot. Archiv.*)

No. 1.

Boiling Distilled Water	500	parts.
Sulphite of Soda	100	"
Citric Acid	8	"
Pyro	15	"

No. 2.

Boiling Distilled Water	500	parts.
Carbonate of Soda	25	"
Potash (probably *Carb. Potass.*)	25	"

Mix one part of Solution No. 1. with 1 part Solution No. 2 and add one part water. —*Amateur Photographe.*

F. Stolze's Method of Testing Emulsions for Acidity and Alkalinity.

The acid or alkaline reaction of emulsion well known to be by no means unimportant as regards the keeping qualities of the same, the latter (alkaline) being apt to cause fog on the edge of the plate. On the other hand, however, it is not desirable that the acidity be too marked, inasmuch as the sensitiveness is thus injured, and the gelatine loosened in structure. When either the acid or alkali is present in but small amount, it will be found very difficult if not impossible to determine the reaction by means of litmus paper, but the following simple method may be employed: coat a glass plate with collodion containing *aurine*, and allow it to dry. As is well known, aurine is absolutely insoluble in water if an acid be present, but if there be even a faint alkaline reaction it will dissolve and show a fine carmine tint. If a few drops of the emulsion to be tested be poured on the aurine-collodion film and worked over it, the film will remain colorless if acid be present. But if there be the least alkalinity, the film will soon show a rose-color. This test is unmistakable and of very great delicacy. A number of tests may be made on the same plate. We advise all who make their own emulsions to employ this test regularly, and if the rose-color is seen, to then add glacial acetic acid drop by drop to the emulsion until the film remains colorless.—*Wochenblatt.*

On Red and Purple Chloride, Bromide, and Iodide of Silver; on Heliochromy, and on the Latent Photographic Image.

BY M. CAREY LEA.

(American Journal of Science.)

ACTION OF FERRIC CHLORIDE ON METALLIC SILVER,

It has been long known that silver was blackened by ferric chloride, and this action has been proposed in the text-books as a means of obtaining sub-chloride, for which it is quite unsuited.

Ferric chloride acts on silver much as sodium hypochlorite does, but less rapidly. With hypochlorite the action is complete in a few hours, or often in an hour or less; with ferric chloride one or two days are required before the product ceases to yield silver to hot dilute nitric acid. In both cases the action seems to be alike in this: that no sub-chloride is finally left uncombined with normal chloride.

The product is an intensely dark purple-black when the action takes place in the cold. With heat continued for many hours, ferric chloride can be made to attack the purple salt, and gradually convert it into AgCl. With a strong solution in large excess, kept at or near 212° F. for sixty hours, the color was gradually reduced to pink, and finally to a dingy pinkish-gray. Pure white cannot be obtained, as it can by aqua regia.

In order to observe more exactly the course of the action, a strong solution of ferric chloride was allowed to act on reduced silver in fine powder for four minutes, and then a fresh portion (always in large excess) for the same time. Analysis showed that at this stage of the action the material contained :

Ag (determined)	76.07
Cl (by difference)	23.93

If we supposed that all the silver was combined with chlorine, the constitution of the substance would be :

AgCl	92.49
Ag_2Cl	7.51
	100.00

But this was probably not the case ; there was almost certainly free silver present, and consequently a less proportion of sub-chloride. Another specimen, treated repeatedly with hot acid until every trace of free silver was removed, was found to contain 1.52 per cent. of sub-chloride, color purple. Another similarly treated contained 7.3 per cent. of sub-chloride.

ACTION OF NITRIC ACID ON SILVER SUB-CHLORIDE.

When freshly precipitated and still moist sub-chloride of silver is treated with nitric acid, a sharp effervescence, accompanied with a disengagement of red fumes, sets in; presently the strong red coloration of the photo-chloride appears, and the action ceases. This production of the red and not the white chloride in the decomposition of Ag_2Cl is precisely what might have been expected, for when AgCl is formed in the presence of Ag_2Cl, more or less combination always takes place.

The action is interesting in this respect : the AgCl first formed is, at the moment of formation, in presence of all the yet undecomposed portion of Ag_2Cl, and whatever part it combines with is removed from the action of the acid. It would, therefore, seem probable that this method would be one of those that yielded a product having the largest proportion of Ag_2Cl, but analysis showed that different specimens were extremely variable ; of those analyzed, one contained 8.62 of Ag_2Cl, another 6.56, and a third 1.96. All that analysis can do with such substances is to fix the limits within which they vary. The quantity of sub-chloride left after treatment with nitric acid depends partly on the strength of the acid and the time for which if is allowed to act, but also, to some extent, on variations in the resistance of the substance itself. These specimens were of shades between rose and purple.

The color of any particular specimen is always lightened in shade by abstracting Ag_2Cl from it by continued boiling with nitric acid. But as between different specimens—especially when formed by different reactions—it by no means follows that the darkest in color contains the most sub-chloride.

Argentous chloride, when treated with sodium hypochlorite, yields a purple form of photo-chloride. A specimen so treated contained 2.57 per cent. of Ag_2Cl.

ACTION OF CUPRIC CHLORIDE ON SILVER.

When metallic silver is submitted to the action of either cupric chloride, or, what gives the same result, a mixture of copper sulphate and ammonia chloride, an action takes place very similar to that of ferric chloride, but more energetic, and the resulting red chloride is apt to be lighter in shade, though in this respect it varies very much. As in the case of ferric chloride, this action of cupric chloride on silver is given in some text-books as a means of obtaining argentous chloride, for which purpose it is as little suited as the iron salt.

As a mode of obtaining the red chloride, it is not to be recommended. It is troublesome to get the copper completely removed.

A specimen analyzed was found to consist of white chloride, with 6.28 per cent. of sub-chloride.

ACTION OF PHOTO-CHLORIDES ON SILVER SOLUTIONS.

Cuprous Chloride.—When very dilute solution of silver nitrate is poured over cuprous chloride, a bulky black powder results, which by boiling with dilute nitric acid turns red, the acid extracting little or no silver.

Ferrous Chloride.—When silver nitrate is dissolved in a slight excess of ammonia, and this solution is poured into a strong one of ferrous chloride, there results a precipitate, which is sometimes grayish, sometimes olive-black. By washing with dilute sulphuric acid, this product becomes brownish purple, and brightens by boiling with dilute nitric acic. It was found to contain 4.26 per cent. of sub-chloride.

(*To be continued.*)

A Journey Through Arabia Petra with the Camera.

BY WILLIAM H. RAU.

(Continued from July Number.)

On the morning of the 28th of March, 1882, we arose unusually early, trouble seemed to be in the air. We anticipated some disturbance with the unruly fellahin, who were especially annoying. They had somehow gotten wind of our intended departure on that day, and redoubled their efforts at exactions, realizing the fact that the golden opportunity to fleece us was slipping out of their reach. During our breakfast, an old villainous looking fellahin presented, through the entrance of our lodge, a matarak. Unthinkingly it was accepted by Mr. Ogden, and hung upon the fly of our tent. This was the prelude to a scene which cost us hours of vexation, inasmuch as £10 was demanded for the matarak. We, however, finally succeeded in compromising to such an extent that it was granted us to visit the Deir, a beautiful temple some distance from the camp. We were accompanied by two guides, Mohammed and another Bedouin. Meanwhile our dragoman, Hadaya, arranged with the natives to get us and our luggage safely out.

The entrance into Petra had been easy enough, but our fears were now lest we should have a struggle to get out. Our start was made at 6.30 A. M. After crossing the valley in which the city was built, we came to a gorge to the north. The ravine was wide at the opening, but soon became narrow and choked up with enormous rocks. Progress would have been impossible had not we made use of the rocky stairways which the ancient people had cut. The steps were much worn, but we were grateful for their aid.

The ancient dwellers of Petra seemed to never have taken in consideration the expenditure of any amount of labor and cost to facilitate access to their splendid monuments placed at the summits of the mountains.

This gorge, whose walls were more than 1500 feet in height, had a superb stairway leading up to the great tomb or temple which the Arabs call El Deir, or the Convent. The ascent was tiresome, and not accomplished without the expenditure of much labor, so that we did not reach the summit until 8.15 A. M. But all our toil and hardship was at once forgotten at the sight of this noble structure. We stood before it, wrapt in admiration of its stately proportions and classic grandeur.

Burkhardt, who visited Petra in 1811 disguised as a Mohammedan pilgrim, seems to have known nothing about the Deir, not making any mention whatever of it, and Irby and Mangles, in their graphic description of Petra, were permitted to see it through a telescope only, miles away. Laborde, a French traveler, was the first to visit and explore it.

We appreciate, therefore, our privilege of having a sight of this glorious work, the architecture of a people whose very name seems to have been lost until the most recent times. Out of the solid rock it stands sculptured, an enormous monolithic monument, silent, but pregnant with memories of the past. It is almost perfect in preservation, resembling somewhat the Khuzneh. Its facade, however, is broader (150 feet), and its height greater. It is not quite so rich in detail of profuse ornamentation, but is more chaste and classic in style, the ornamentation being more an the essential part of the structure. The interior is a single large chamber, plain, with the exception of a sculptured niche facing the great door, which is reached by the ascent of several steps.

The Deir faced Mt. Hor, the famous summit on which Aaron died.

Dean Stanley said that Mt. Hor is, perhaps, the only mountain of Scripture about which there seems to be no doubt as to its authenticity. We were not allowed to approach the holy place, the Arabs deeming it sacrelige to permit the profane foot of the infidel to touch even its sacred base.

Opposite the Deir is a lofty rock, reached by an artificial causeway, on top of which we found a level platform Here we saw the remains of a line of columns, the bases of which are still in place; these, no doubt, at one time formed the portico to an excavated temple, square in shape, and with a carefully sculptured niche at the bottom. From this platform, or terrace, we enjoyed an extended panorama of Petra. We beheld the norrow gorge up which we had labored, Mt. Hor, and the desert beyond. We secured a complete series of pictures of all, and reluctantly started on our return down the gorge.

Reaching the valley about 11 A. M., we found much to engage our camera at work, especially about the rocks on the west. However, we contented ourselves with making negatives of Kasr Pharoun, the only built-up structure in Petra, also an unfinished tomb near by.

The Kasr Pharoun, or Pharaoh's Palace, is not in a very good state of preservation. It is rather plain in appearance, with only a frieze and cornice, ornamented in good taste. The interior was at one time plastered and ornamented in stucco. Time has effaced nearly every trace of ornamentation. Sections of the tesselated pavement still remain on the north side. Near by on the cliffs was an unfinished temple which showed the plan of construction. The rock was shaved down in a perpendicular direction, and after the front had been thus made smooth, the design was marked out in four columns; next, the capitals were fashioned, the sculptors beginning at the top and working down towards the bottom. We secured a fine picture of this unfinished temple, and then made our way towards a large group of Arabs coming in our direction, headed by Hadaya. Our photography was to cease, we read trouble on our faithful dragoman's brow. He seemed childish at times, so worn out was he by constant watching and with the harassing of the Arabs. He informed us that our luggage had gone on ahead, under the care of Abdallah (our servant). He was uncertain whether it had reached the Wady Araba safely, but he hoped so. It is customary for the Bedouin to escort visitors from Petra—this escort was a guard of honor, whose services would have been more appreciated in the breach than the observance. On reaching the top of a hill or pass, they went through the customary Arab salutation, and we flattered ourselves we might now set off. Still, something seemed lacking. Sheikh Salim thought they should be paid for escorting us so far. We accordingly gave them £2. They feigned to be insulted with so paltry a sum, and indignatly threw it at Hadaya's feet, making preparations for a grand clearing out. Another pound was offered, and refused. Finally, after 30 minutes quarreling, during which time swords, pistols, and guns were fully displayed, the offer of £5 was accepted, and the Bedouin extortioners left us; but there still remained the fellahin, whose chief followed menacingly with his enormous wide-mouthed pistol, a small cannon, pointing at our dragoman, evidently making demand for his associate devils. Another half-hour of disputing followed, during which the whole of Salim's crowd came charging down on us to assist us out. A settlement was made by giving the Sheikh of the fellahin £2.

They now dropped away from us, as we slowly moved along on our camels, until but a few remained, among whom was Mohammed, our guide of the morning, a very fierce, fine-looking fellow. He was, it was easy to see, impressed with the success of the others at extortion, and thought it an opportunity to look out for himself. Our dragoman refused his demands, telling him to *imshee* (clear out), but he drew his sword and made a terrific cut at Hadaya, which fortunately only glanced his leg, cutting through his baggy, silken trousers, doing no harm. Had Mohammed been mounted, the cut might have been serious. Hadaya hereupon loudly called for Salim, demanding protection until we should get out of Petra. Four or five Arabs, mounted on horses, with Salim at the head, came dashing towards us, and, on the payment of money, Mohammed was driven away; another payment followed for the short escort they gave us. Salim now dismounted, and walked some distance with us, to insure our safety. On his departure, we found that he and Hadaya had a personal dispute, the nature of which we were ignorant until some time after. It appears Salim demanded £6 for a new red coat. Hadaya called to us, and said, excitedly, "Now I shall kill him." Seeming on the verge of frenzy, a lively discussion followed, which terminated in the giving of the £6 to Salim.

We set out, after the usual Arab ceremony of kissing and embracing one another, and Salim raising both hands up to heaven, wished blessing and peace upon us, and expressed the hope that Allah would be with us. It seemed like the rankest kind of hypocricy and mockery of blessings when the palaver was translated for our benefit.

We trudged along for a short time in peace, but suddenly we were startled by the appearance of a fellahin who demanded money for a sheep which we had eaten in Petra. Little attention was paid him, notwithstanding his energetic demonstrations with his raised gun. Finally, he grew bold or desperate, and seized hold of the halter on Mr. Ogden's camel, pulling vigorously at it, and gradually bringing the beast to a kneeling position. Hereupon the rider, thoroughly worked up with this culminating result of the day's annoyances, excitedly pulled out his revolver, and would have shot the miscreant had we not (fortunately for the whole party) timely prevented him; it is almost certain our destruction would have been sealed, and the account of the journey to Petra never written.

The fellahin, when urged, confessed that he was a poor man, begging two francs. We suffered him to go along with us, but did not give him any money.

Sheikh Aouda, who had paid a friendly visit to the Bedouin of Wady Mousa, and was returning to Gaza, joined our party, and agreed to act as a guide. Soon after this the old fellahin who had passed in the matarak (a camel stick) appeared, and demanded £10 for it. He clung to us like his brethren, until Aouda gave him a severe thrashing, striking him a number of times on the head with a heavy stone pipe-bowl. This effectually drove him away, so we thought. Suddenly, however, Hadaya called out, "Gentlemen, we must fight! Get off your camels, we must fight!" We saw nothing at first, but soon distinguished a row of musket barrels pointing at us from behind some rocks. We were ascending a hill, and were taken at a disadvantage. There were only two revolvers with the party, Mr. Ogden's and an old one of Hadaya's. The latter rushed on ahead of us, and fired several shots, crying "Sahib! Sahib!" (friends.) This brought the men from behind the rocks, who proved to be some of our own Arabs from Akaba. Half an hour we slowly descended towards the broad Wady Araba, when suddenly a shot fell near us. On looking up, we found our fellahin of the matarak standing on a hill above us. Four of our men ran towards him and fired, but missed him. Calling to him to come down, he held up his hands and surrendered. It was decided to tie and leave him. He seemed willing, and they began tying his hands before him, when someone suggested tying them behind; but when this was attempted, he resisted. Hadaya, now thoroughly wild with rage, rushed at him, seized him by the elbows, and tripped him with his foot. The man dropped, striking his head on the hard stone, and causing a slight flow of blood. This was serious: blood had been drawn—blood money must be paid. The tying process was abandoned, and Hadaya kissed him. After some discussion, he agreed to accept 10 francs, but where should we get it—our party was drained dry. Our friend of the sheep was searched, and enough found on him to borrow that amount, which was handed over to the injured man, and we again began the descent, going as fast as we could, and resting at 3.30 to lunch. None seemed to take much interest in eating, and we again started, sending several men ahead to scout for us, reaching our camp in Wady Araba at 5 o'clock, very tired and worn out. During all of our trouble, our own Bedouin from Akaba acted most cowardly, and were of no service in protecting us. Again, we did not know what all the trouble was about until it was explained by our dragoman, thus being unable to render any assistance. Although the Bedouin and fellahin of Wady Mousa were armed to the teeth, their arms were very inferior, excepting their swords, which were of Damascus. Still, they were bold and courageous, and not at all cowardly. Their appearance was devilish, as they wear a dark-blue burnous, or kofeeyeh, confined with a cord of camel's wool, drawing the corners of the burnous up over the ears and under the agal, allowing the points to project like horns, and showing only their eyes. They ride horses, and carry spears from 10 to 15 feet long, with broad, pointed blades at least 24 inches long. They were not at all religious, and are easily amused. When Mr. Birnie took off his eyeglasses, they thought he was taking his eyes off.

It is said by former travelers that serpents and lizards abound in the desert, yet in our forty-five days' travel, no member of our party saw one.

Nearly all the pictures were made on Carbutt's A plates, and some on B. I have many times been complimented on the quality of the results obtained, which I attribute, first, to experience in handling dry plates; next, to slow plates—giving full or over time; slow oxalate development, with plenty of bromide, and in making quick pictures, using portrait lenses. Yet, strange to state, the views of such a wonderful and almost unknown region, made with so much care, and under so many difficulties and dangers, and costing so much time and money, do not meet with a ready sale.

* * *

OUR JOURNAL is issued much earlier this month than usual, in order to be in time for the Convention; and to stimulate any foolish photographer who is hesitating whether to attend or not. Remember the injunction of St. Paul: "Forsake not the assembling of yourselves together as the custom of some is."

The great teacher of the Gentiles knew the paramount importance of unity and co-ordination of interests for the growth and success of the new religion.

Some of our stay-at-home brothers, however, are wiser in their own conceit, and you know of whom there is more hope than of them.

Chicago Convention P. A. of A.

RULES CONCERNING EXHIBITS AND COMPETITION FOR PRIZES.

The rules adopted for exhibits of photographs in the Art Hall, and competition for Association and private prizes, have been modified to stand as follows:

"All exhibits competing for Association prizes must be without frames or glass. Pictures may be fastened to boards covered with cloth or paper, and a neat moulding, not exceeding one inch in width, may be put around the edge of board, to give a finish.

No signs of any description shall be allowed to be placed in the stalls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7x10 inches in size, and to contain only name and address of photographer whose work it represents.

This shall not prevent the use of card-mounts with the photographers address, and any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

No pictures will be allowed in the Art Hall that have any marks indicating what plates, lenses, paper, etc., were used.

Parties displaying pictures in competition for private prizes, shall be allowed to place on each picture, or collection of pictures, one small card or tag, not to exceed 2x4 inches in size, with a private mark, which is to be made known to the judges only.

Exhibits conflicting with this rule may be displayed in the Stock Dealers' Department, to which above rules do not apply.

Executive Committee P. A. of A.

Hints on Posing.

BY J. A. SHERWOOD.

Art is nothing unless reduced to a science.

Attitude should be in harmony with age, stature, habits, etc.

Position natural, muscles relaxed. Decide which side of face.

Hair—Combs and ribbons are accessory to the face.

Eyes—Eyes should be turned one-third further than face, oblique sighted; profile looking down as in reading; deep-set eyes and wrinkles require a broad front light; for wrinkles use diffuse light.

Nose—If crooked, head should be in profile, on the side least shown.

Mouth—If crooked, part drawn down, foreshortened and in profile; to prevent wrinkles in the lips, request the sitter to moisten them in the usual way.

Shoulders—If broad, turn partly sideway to reduce.

Hands—The position should compose well.

Arrange personal adornments and furniture used in composing. Buttoning and unbuttoning the coat changes from stout to slender.

Round face—Use more top light.

Long thin face—Use more side light.

Front view of hollow cheeks, three-fourth and profile of round faces.

Lighting—Pure, decided; shade according to complexion.

Background—Right shade for dress and complexion; shade of sitter opposite of light side of background.

Expression—Create in the mind the sentiments desired to be portrayed.

Keep up the conversation—use ridiculous toys.

Our Picture.

There is always a demand for first rate portrature. The difficulties connected with the production of artistic work are much greater in this than in any other branch of photography. The landscape photographer has more abundant material at hand, allowing more latitude in combination, more scope for effect, nor will his shortcomings be so easily perceptible. A portrait stands solely on its own merits. It is either good, very good; or bad, very bad: there is no compromise for indifferent work. How often do we hear the complaint that year after year our exhibitions of oil paintings are crowded with pictures of people about whom we know nothing, about whom we care less, yet these very pictures might be made interesting.

It is not because they are of commonplace people that artists pass them by with indifference. Rembrandt, Reynolds, Rubens and Gainsborough, painted just such people, but they had the faculty or genius, let us say, to make the commonplace instinct with their own thought and sentiment. It is within the power of almost any amateur to make a portrait which shall look more like the sitter than anybody else, but to make the face mirror the soul is the work of an artist, whether he uses the palette and brush, or the camera and lens.

We would not say camera and lens had we not seen simple photographs in which the face had a peculiar sweetness of expression, which seemed to actually tell the very thought passing through the mind of the sitter.

Perhaps you may say such portraits are only happy accidents. We will acknowledge it, and yet hold our belief. The existence of such expression proves that the pencil of light can fix beauty, whether design or fortunate circumstance call it forth.

To produce first-rate portrature demands from the photographer, just as it does from the painter, not only talent and skill, but a certain amount of general culture.

Let photographers keep to the high standard and regard more what they call fastidiousness of their customs, and people will take as much delight in looking at portraits in an album as they do in looking at landscapes.

A portrait, like a sonnet, however, is always more interesting when we are acquainted with the subject. Shakespeare's, marvellous lines would have more human motive did we but know who was the "only begetter of them."

We are delighted, therefore, to give our readers a series of beautiful subjects, favorites of the footlights, from the studio of Mr. Kuebler, of Philadelphia. Mr. Keubler has gained much renown with the histrionic profession by his artistic poses, and his excellent work has a wide reputation with the general public.

The characters need no introduction, as they are familiar to all who take delight in the popular operas or plays of the day.

◆

THE Photographic Society of Great Britain will hold the exhibition for 1887 in the gallery of the Royal Society of Painters in Water Colors, 5A Pall Mall East, London, S.W.

The exhibition will remain open daily (Sundays excepted), from Monday, the 3d of October, until Monday 14 of November.

Medals.—Medals will be placed at the disposal of the judges of artistic, scientific, and technical excellence, and the judges are instructed to reserve three medals for portrait or figure subjects, one medal for lantern transparencies and two medals for apparatus (if they find them worthy of awards.)

Regulations.—Each exhibitor of photographic pictures must fill up a printed entry form (supplied by the society). This must be enclosed, and addressed to the "Hon. Secretary," Photographic Society of Great Britain, 5A, Pall Mall East, London, S.W.

It is suggested that when any work shown is taken by a special process, prepared and made by the exhibitor, information as to particulars should be communicated.

At the back of each frame must be written the name and address of the exhibitor, with the title or description of the picture, and the number (if there be more than 1) to which it refers in the entry form.

Each frame or picture may have the exhibitor's name, and the subject of the picture, neatly inscribed, but no address or anything in the shape of an advertisement will be permitted.

Pictures in Oxford frames, and pictures previously exhibited in London, will not be admitted.

Each exhibitor of photographic apparatus must fill up the entry form (supplied by the society), and write a description of each piece of apparatus, and to the exhibit itself, a removable card card must be attached, containing the name of the exhibitor, and the number to which it refers in the entry form.

The exhibition committee are instructed to refuse apparatus and appliances that have been already shown at London exhibitions and that do not embrace some points of special interest, to be mentioned by the exhibitor on the entry form.

Photographs colored by scientific or mechanical means will be admissible. Photographs colored by hand will not be admitted. Negatives and transparencies will be admitted.

N. B.—All exhibits of whatever description, must be entered on the society's entry form.

No charge for wall space will be made to foreign exhibitors.

Reception of Exhibits.—Exhibits sent in packing cases (carriage paid), must be addressed to the "Photographic Society of Great Britain," care of Mr. James Bourlet, 17 Nassau st., Middlesex Hospital, London.

Lantern transparencies sent in competition for the MEDAL, not less than six, fitted (removable) in a frame to stand upon the table, and it is desirable that duplicates thereof be sent for exhibition in the optical lantern. They must be delivered on Wednesday, September 21st, and will only be eligible for award when both the negatives (which may be required to be seen) and slides are the work of the exhibitor.

Optical Lantern.—Photographic transparencies will be shown with the society's optical lantern every Monday evening during the exhibition. Slides are invited to be sent for this purpose; they must not exceed 3¼ inches in height. and must be delivered at the Gallery not less than ten days before the Monday of exhibition, to enable the committee to select and arrange them.

Blank entry forms, and any further information respecting the exhibition, apparatus, lantern slides, and nomination form for membership, can be obtained from the Assistant-Secretary, Edwin Cocking, 5A, Pall Mall East, London, S.W.

W. F. DONKIN, M.A., F.C.S., F.I.C., Hon. Secretary, 142 Sinclair Road, Hammersmith, W.

THE Glasgow Photographic Convention which was held for one week, beginning with July 4th, is pronounced by the English journals a complete success. It may be equalled in the future, but it is impossible that it will be excelled.

The *British Journal of Photography* says: "A greater amount of real, solid business was done in that week than has ever been achieved during a similar period since photography was ushered into existence."

Our Convention is very nigh us. Let the same be said of the Chicago gathering of 1887.

IN our account of the beautiful picture of Hospenthal, which illustrated the last number of the AMERICAN JOURNAL OF PHOTOGRAPHY, we erred in saying the negative was upon an albumen plate. Dr. Wallace has kindly noticed the error, and informs us that it was upon wet collodion. We have received many congratulations for securing so artistic a subject, and for having it reproduced in so masterly a manner.

WE are glad to know that the fire in the rear store of the extensive manufactory of E. & H. T. Anthony & Co., although so destructive, will neither seriously interfere with their means of supplying their customers nor prevent a fine display at the Chicago Convention, although they may not be able to present such a good exhibit as they contemplated before the fire. This decision of Messrs. Anthony & Co. means much labor and untiring effort to be in time for the Convention, but the enterprise of the firm is quite equal to the occasion. Along with the host of others, we send our sympathy, and also applaud them for their resolution.

THE firm hitherto known as William H. Rau & Co., doing business in photography at 1206 Chestnut St., Philadelphia, has been dissolved by mutual consent of its members, and will in future be conducted at the same place solely by Mr. William H. Rau.

A number of improvements have been made in the factory, and greatly increased facilities for promptly supplying most excellent work in the various photographic branches.

A specialty is made of bromide enlargements and lantern slides. A catalogue of the latter is just issued, containing, without a doubt, the largest and most varied collection of views, from every part of the world, made from choice original negatives.

VICTORIO TURATI, of Milan, Italy, sends us a beautiful catalogue of fine reproductions from paintings, sculpture, bric-a-brac, and natural objects. They are upon process blocks, and redoun much to the credit of the establishment.

THE American Detective Cameras of E. & H. T. Anthony & Co., and of the Scovill Manufacturing Co., attracted much attention and commendation at the Glasgow Convention.

AUGUST BARGAIN LIST.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	$4 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—8x10 Osborne Interior, new, light left of sitter	16 00
1—Pharaoh Position Chair	20 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, lt. right	15 00
1—8x8 Seavey Ground, new	15 00
1—7x10 Rubber bath, covered top	3 00
1—12x16 Rubber tray, used for silvering	2 50
1—Iron centre camera stand	3 00
1—8x10 Interior ground	6 50
1—8x10 Exterior ground	6 50
1—8x10 Exterior ground	6 50
1—8x10 Interior ground	12 00
1—8x10 Plain painted ground	4 50
1—Bryant rustic gate	6 00
1—Seavy balustrade	15 00
1—Queen posing chair, drab velveteen	13 00
1—Sliding arm chair	6 00
1—Queen Anne baby lounge	10 00
1—Rustic corner chair	6 00
1—8x10 Perfect camera stand	6 00
1—Knickerbocker stand, with 14x17 top	12 00
1—8 x 10 Osborne's interior background, new, lt. left	$20 50
1—8 x 10 Seavey's interior background, new, lt. left	20 00
1—8x8 interior background	15 00
1—8x10 Hough exterior ground	16 00
1—4x8 Osborne's tide slip	7 50
1—Iron centre camera stand	2 50
5x8 orange glass developing trays	35
Wood drop shutters	1 50
Negative boxes, odd sizes, each	20
1—Adjustable arm Position Chair	12 00
1—Position Chair, rising back	8 50
1—6 inch Burnisher	5 00
4¼x5¼ Beveled Edge Cards, per doz.	10
25—5x8 Flat Printing Frames, good condition, each	45
10—8x10 Flat Printing Frames, good condition, each	57

SEPTEMBER BARGAIN LIST.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	$4 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—8x10 Osborne Interior, new, light left of sitter	16 00
1—Pharaoh Position Chair	18 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, light right	15 00
1—8x8 Seavey Ground, new	15 00
1—12x16 Rubber tray, used for silvering	2 50
1—8x10 Interior ground	6 50
1—8x10 Exterior ground	6 50
1—8x10 Exterior ground	6 50
1—8x10 Interior ground, new	12 00
1—8x10 Plain painted ground	4 50
1—Bryant rustic gate	5 00
1—Seavey balustrade	14 00
1—Queen posing chair, drab velveteen	13 00
1—Sliding arm chair	6 00
1—Queen Anne baby lounge	10 00
1—Rustic corner chair	6 00
1—8x10 Perfect camera stand	6 00
1—Knickerbocker stand, with 14x17 top	12 00
1—8x10 Osborne's interior background, new, light left	20 50
1—8x10 Seavey's interior background, new, light left	20 00
1—8x8 interior background	15 00
1—8x10 Hough exterior ground	16 00
1—4x8 Osborne's tide slip	7 50
5x8 orange glass developing trays	35
Wood drop shutters	1 50
Negative boxes, odd sizes, each	20
1—Adjustable arm Position Chair	12 00
1—Position Chair, rising back	8 50
1—6-inch Burnisher	4 00
4¼x5¼ Beveled Edge Cards, per dozen	10
25—5x8 Flat Printing Frames, in good condition, each	45
10—8x10 Flat Printing Frames, good condition, each	57
1—20 in. Rotary Burnisher, slightly used	24 00
1—14 in. Eureka Burnisher	20 00
1—Osborne style, new	4 50
1—4oz. Porcelain mortar and pestle	35
1—6 in. Porcelain mortar and pestle	50
1—W. J. A. Ruby lantern	35
1—Hydrometer	40
1—Half-size composition bath in box	75
2—4x5 Japan trays and plat lifter, lot	20
Pearl leads, the best retouching point in the market, each	15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each	1 35

Camera Boxes:

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—5x8 A. O. Co. first quality box, 4 double holders, carrying case tripod, with 1 5x6 Dallmyer R R Lens, used very little, good as new	68 00
1—4x5 Anthony's View Camera and 2 holders, lens and tripod	11 50
1—6½x8½ camera, with ratchet bed, ground glass and wet holder	6 00
1—Half-size Ferrotype box, with four 1-9 size tubes	15 00
1—3¼x4¼ Bicycle Camera, holder and case	9 00
1—4x5 '76 outfit	15 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new	44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new	46 00
1—14x17 Double Swing Portrait Box	40 00
1—¼ size Camera, and wet holder	3 50
1—½ size Portrait Camera and	

stand	8 00
1—4x5 New Model outfit, with 3 holders	8 00
1—5x8 Camera, with one 5x8 and pair stereo lens, complete	15 00
Lenses:	
1—¼ size Darlot Gem Lens	3 00
1—Finder	3 25
1—Prosch Shutter, No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched pair imitation Dallmeyer Lenses, per pair	12 00
1—5x8 Dallmeyer View Lens	15 00
1—Woodward Condensing Lens.	10 00
1—4x4 Darlot Globe Lens	25 00
1—4x4 " " "	20 00
1—5x8 Abendroth wide angle view lens	18 00
1—11x14 Zentmeyer combination	40 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—½ size C. C. Harrison portrait lens	5 00
1—¼ size portrait lens	3 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—10x12 Dallmeyer Rapid Rect. Lens	50 00
1—4x4 Dallmeyer Group Lens	50 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	40 00
1—4x4 Voigtlander Portrait Lens.	25 00
1—Extra 4x4 Chapman Portrait Lens	20 00
1—8x10 Harrison Globe Lens	10 00
1—8x10 E. A. View Lens	5 00
2—18x20 Harrison View Lenses, each	20 00
1—5x8 Darlot View Lens	2 00
1—10x12 " " "	5 00
1—4x5 Harrison & Schnitzer View Lens	2 00
1—Ross View Lens	5 00
1—H. Fitz Double View Lens, rival stops	8 00
1 pair 4x5 Dallmeyer R. R. Lenses	30 00
1—5x8 R. O. Co. Lens, good as new	3 00
1 pair Waterbury Stereo Lenses	4 00

FOR SALE.—A well-established Gallery in Philadelphia, one of the best locations in the city; doing a thriving business. Reasons for selling, desire to retire. Apply Thos. H. McCollin & Co., 635 Arch St., Philadelphia, Pa.

WANTED an Operator, one capable of managing a gallery; or a young man to learn the business. Apply Thos. H. McCollin & Co., 635 Arch St., Phila., Pa.

WANTED—A young man would like position under the light: gained his knowledge of the business at Gilbert & Bacon's, Phila. Address K., care Thos. H. McCollin & Co., 635 Arch St., Phila, Pa.

WANTED—A Ferrotype Camera with 37 Lenses, to make 36 pictures on a 5x7 plate with one exposure.

Also a Ferrotype Camera with 18 Lenses, to make 18 pictures on 5x7 plate with one exposure. Address A. R. J., care of Thomas H. McCollin & Co., 635 Arch St., Phila., Pa.

WANTED—One-sixteenth size Gem-Tubes. T. H. McCOLLIN & Co.,
635 Arch Street.

Now Ready.

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New Acme Water Colors.

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20 Shades of the Transparent Tinting and 5 Body Colors.

Great Improvements in Form and Quality.

Altogether the best for Photo Portrait Coloring, and especially adapted to Bromide Paper, Transparencies, etc.

Large Palette Box, 18 colors, $2.50
Amateur Box, 6 choice colors, 1.00

Separate Tinting Colors, ordinary, 25 cents; Body Colors, 15 cents; Carmine, 35 cents; Acme Medium, 35 cents.

SEND AT ONCE FOR THE ACME GUIDE in the use of Transparent Colors, as applied to Photos. All kinds of Paper-Views, Lantern Slides, Transparencies, Enameling Over Colors, Transferring to Glass, Tintype Coloring, Canvas and Oil Imitations, Pure Oil Tinting, Fabric Painting, etc., etc.

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" " Exhibits on other Bromide paper,	-	5

The quality of the work shown on Eastman's paper was as much in advance of others as the number of prints, and showed conclusively that Permanent Bromide Paper is the only paper that can be relied upon every time to give *bright, brilliant prints* in ordinary hands.

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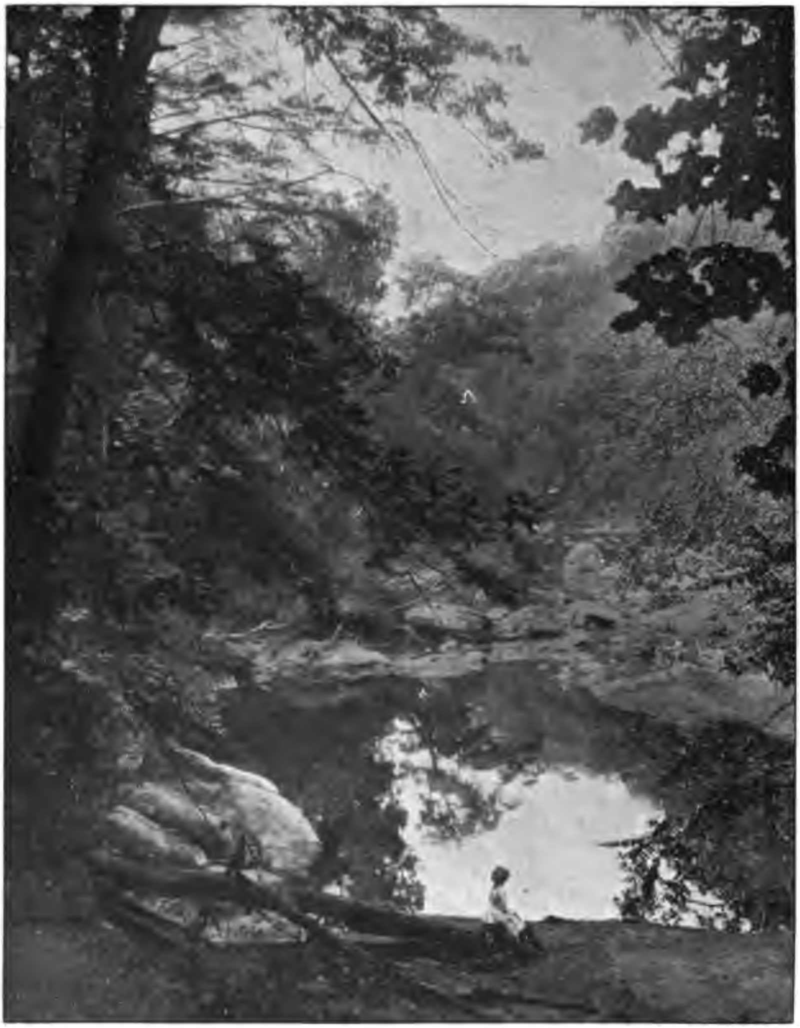
ROCHESTER, N. Y.

Branch Office, 13 Soho Square, - London, England.



ON THE WISSAHICKON.

NEGATIVE BY JOHN BARTLETT.

IVES PROCESS,
CROSSCUP & WEST ENGRAVING CO. PHILADELPHIA.

$1.00 per Ann

Don't Ask Quest

BY EI LERSLIE W

A heading like the ab like anything rather to appear in a journal wh help and to inform those We let it stand as it is, hope that a somewhat photographers who no soon plates than they run to som questions why they have induced to pause and their mishaps and the caus them.

In order to produce photography the various manip must be performed in a rational, or and systematic manner, with good materials, and under circumstances as favorable as possible.

We may congratulate ourselves upon the fact that it is easier nowadays than it ever was before to make good photographs, but many people seem to take up the camera with the idea that it is nothing but a machine from which perfect photographs may be ground out somewhat as tunes are from a grind-organ. They soon realize their mistake, and then come

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AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, OCTOBER, 1887. No. 10

AMERICAN

JOURNAL OF PHOTOGRAPHY,

PUBLISHED MONTHLY.

$1.00 per Annum, in Advance.

Don't Ask Questions.

BY ELLERSLIE WALLACE.

A heading like the above may seem like anything rather than what ought to appear in a journal whose object it is to help and to inform those who read it. We let it stand as it is, however, in the hope that a somewhat numerous class of photographers who no sooner lose a few plates than they run to some one to ask questions why they have failed, may be induced to pause and think a little over their mishaps and the causes underlying them.

In order to produce good results in photography the various manipulations must be performed in a rational, orderly, and systematic manner, with good materials, and under circumstances as favorable as possible.

We may congratulate ourselves upon the fact that it is easier nowadays than it ever was before to make good photographs, but many people seem to take up the camera with the idea that it is nothing but a machine from which perfect photographs may be ground out somewhat as tunes are from a grind-organ. They soon realize their mistake, and then come floods of questions as to the reasons of their failures; sometimes the latter are amusing in their simplicity.

As an instance how highly educated persons will at times betray a singular want of common sense in these matters, we remember a gentleman of high scientific attainments who once came to us to know why the plate showed no image, but only a mass of fog. All the solutions had been "made of the finest chemicals, and in strict accordance with the printed formula." On examining into the case we found that he had been trying to work against the light. Having some models that he wished to photograph indoors, he had put them up in the window and going back into the room pointed the camera toward the subject, or, in other words directly against the glare of light entering in from the sky. He had also given an exposure so much too long that the feeble image impressed on the film was burnt out from over action. To cut the story short, we shall merely add that we gave our friend some elementary hints on the lighting and management of objects intended to be photographed, and, on leaving, asked him to remember that just as the human eye can not see the details of objects clearly when directed against the principal source of light, so neither can the lens and chemicals be expected to give a good picture under like circumstances.

Failures from careless handling of

chemicals are very common. We have been in dark rooms where the very air was filled not only with the fumes of volatile substances, but also with solid particles of hypo, iron, alum, common salt, bichloride of mercury, brass filings, etc. Any of these things if left on the floor are sure to get ground under foot, thus making a dust that rises and settles on everything. We have also been in dark rooms in the upper stories of high buildings where the heat in summer was so overpowering that the hydrant water would get warm on its way up through the pipes, and act injuriously upon the film. Again we have seen dark rooms so cold in winter that proper chemical action could hardly be said to take place at all; such operations as fixing (either plates or paper) being rendered most tedious and uncertain. Plates are sometimes lost by allowing white light to reach the film before fixing is thoroughly performed, and stains will often appear during intensification, even when the plates have been well washed. Too little light and too much light in the dark room are almost equally bad, for on the one hand we must be able to see clearly what bottles we are handling and what the character of the image is; and, on the other, the film must be amply protected against actinic light. Light-struck plates are seen every day; so are double outlines in the image, and want of sharpness from careless focussing; and we have even seen the view cut in pieces, as it were, by a badly chosen position of the camera, where branches of trees, ropes, cables, etc., passed right across the field of the lens. Even good operators will sometimes show landscapes in which the distance, projecting foliage against the sky, towers, church steeples, etc., are so badly solarized as hardly to be visible at all.

We speak of these apparently self-evident matters merely to give greater weight to our words when we say, that notwithstanding modern improvements in photography, there are great numbers of plates lost every day from causes that can only be attributed to want of forethought on the part of the operator. "I never thought of that" will account for many a wasted plate.

Bona-fide failures, if properly regarded, will often prove themselves the most certain and eloquent of teachers. We surely need not enlarge upon this. The prepared plates themselves are by no means always above suspicion. Even though they may be turned out perfect from the manufacturer's hands, something may happen afterwards. Where the plates are suspected, a few samples of *another make put through the same routine*, will often solve the difficulty. If this fail, an interchange of plates and solutions with some other operator not in trouble, will often indicate the sticking point. The saying that "two heads are better than one" is as true to-day as it ever was.

The Gallic Acid and Silver Nitrate Intensifier—Hydrochinon as an Intensifier.

JOHN G. CASSEBAUM.

READ BEFORE THE PHOTOGRAPHIC SOCIETY, OF PHILADELPHIA.

The best method of obtaining the proper density in a gelatine negative is undoubtedly proper exposure and development.

But even the best manipulators will sometimes be deceived in the printing qualities of a negative and I believe most all who have used the wet plate process have often longed for some intensifier like the old iron and silver, or pyro and silver, and no doubt many have tried o intensify gelatine negatives by the same method, but encountered the disagreeable foe, red stain, and abandoned its use.

Now I feel convinced from a number of experiments made, that iron, pyro or gallic acid and silver can be used without any danger of staining if the film is thoroughly washed and rendered slightly acid before attempting intensification.

If the plate is bathed in the iron and acid, pyro and acid or gallic acid and acid solution for a few minutes, and the solution then poured back into the graduate and the silver added and flowed back over the film, there will be very little danger of staining.

Nitric, acetic or citric acid can be used with either of the above reducing agents.

By this method a negative can be strengthened before fixing as well as after. In the first case the plate should be well freed from the developing solution, in the latter case thoroughly washed to remove all traces of hypo.

To intensify a negative before fixing can only be necessary, when handling plates extremely poor in silver as otherwise the desirable strength can be obtained in the development.

Now to come to the gallic acid and silver intensifying process published by Mr. Bartlett and Dr. Wallace, I must say that after many experiments in this direction, I have adopted the same, as it has proven the best of all in my hands.

By using the preliminary bath of

Per-chloride of iron,	4 gr.
Chrome-alum, - -	2 gr.
Citric acid, - -	4 gr.
Water, - - -	1 oz.

we have at once a clearer, an acidifier and a destroyer of the last traces of hypo.

The perchloride of iron (Mr. Bartlett's suggestion) has been added mainly for the last object and also to improve the resulting color of the negative.

In ordinary temperature double the amount of citric acid can be used and the alum dispensed with.

In extreme warm weather, and when dealing with plates inclined to frill or soften, it is best to pass them through an alum bath and to dry them before subjection to this process.

Attention should be paid not to carry the intensification too far, as the negative will gain intensity on drying.

The negative should not remain too long in the preliminary bath, so as to allow it to bleach, unless handling a negative slightly fogged or overdeveloped; in this case it is advisable to permit the plate to slightly bleach.

The dish containing the solution should be gently rocked to prevent a net marking, which otherwise is apt to occur.

After taking the negative out of this bath, it should be well washed for several minutes under the tap, and the gallic acid and silver, as per formula, flowed over it:

A

Gallic acid, 80 gr.; alcohol, 1 oz.

B

Silver, 40 gr.; water, 1 oz.

One drachm of each to 2 to 3 oz. of water.

When the negative has been allowed to bleach, intensification will have to be carried further, as the underlying image has been converted into a chloride of silver, and consequently would dissolve in the subsequent hypo solution. By carrying the intensification just to the right point, the negative, after leaving the hypo, will prove free of fog, and have brilliant lights and clear shadows.

Sometimes it will prove advantageous to flow the negative when taken out of the fixing bath, with the clearing solution.

It is needless to say that the plates should be well washed.

Recently I have made a few experiments with hydrochinon in place of gallic acid:

Hydrochinon, ...	60 gr.
Nitric acid, ...	2 drops.
Water, ...	6 oz.

½ oz. of this diluted with 2 oz. of

water, and 1 dr. of silver solution added. Plate also previously acidified.

The action of this intensifier is somewhat slower, but the resulting color of the negative is a rich black in the opaque parts, and even a plate, pyro stained to the color of a lemon, was converted into one of a rich gray after subjection to this intensifier. I believe hydrochinon and silver will prove an excellent intensifier and toner for window transparencies.

Killed by Overdose.*

BY J. F. RYDER.

THE uses and abuses of developing methods in general practice, is my subject. I give my impression and my opinion more as an observer than as a handler. I do not expect to tell you anything new, but may attract your attention to my impressions, in a manner to get some value, if any be in them.

The formation of the image in the negative plate and the positive paper are operations of such importance that we can hardly learn too much about them.

First let us consider the negative. You all know that pyro is the developing agent (I say pyro because it is almost universal in this country), and that the accelerator, whether it be ammonia, soda, or potash, is the power that sets the pyro at work. You understand that the pyro produces the intensity in lights or the white parts of your image, and that the accelerator takes care of the dark parts by working up the lower shadows, and giving detail and modeling through the lesser ones.

You all have your formulas, which you believe in. It is not my purpose to disapprove of any one, but to caution you to a careful use of all.

The exposed plate has an image in it; possibly the image is a landscape, some parts of which lie in full light, while other parts fall in deep shadow, or a clump of heavy dark foliage occupies the foreground—perhaps it is a room interior, which is dimly lighted, or the portrait of a person taken much in shadow. We are about to call that image into a palpable existence, to make a visible fact of it.

In case of either of the above described exposures shall we take the usual formula of proportion—so much No. 1 and so much No. 2, to so much water, as printed directions, to be found in every package of plates, say is proper? *Dare* we do it? I say no, if we care to find the best results. Now is just the time to go slow, the image can be better coaxed than driven. Take time, be patient, and get your reward. Understand you cannot get your density first and your details afterward, but *can* first get your details and afterward your density. It is always best first to lay the foundation and then erect the structure. Any builder will tell you that.

One of the most valuable elements of a developer is water, and it is too little used, or in other words, too little of it is used. Particularly for all plates of suspected under-exposure or of doubtful time, as well as for all large heads, a weak developer is required to start, and if found to want more strength add pyro.

Looking to the pyro for density and the accelerator for details, it is easy to understand by varying the proportions of these two elements, most any desired effect can be secured. The strong developer gives dense harsh results, while a weak developer gives soft and delicate effects, hence the value of more water. Remember the mild power is most effective for perfect results in developing. Don't give heroic treatment at the start in any case.

It often happens that at the close of a

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*Read at the Chicago Convention.

day's work, with a big crop of negatives to develop, that the operator, anxious for supper, pushes the work too rapidly for safety. The next morning they are found coarse, harsh and smudgy. They were killed from overdose. If the proprietor have a care for the good name of his work, the sitters must be recalled and retaken. Too much haste often spoils what a little patience would have saved.

What I believe to be the best and safest method is to commence with the developer weak, and with the accelerator in excess of the pyro. As the development progresses and a want of more strength or density is discovered, pyro should be added to give it. To wear the same weight of clothing throughout the year, in cold and in hot weather alike, in a climate like ours, would be reckless and inhuman, but no more absurd than to give all plates the same strength of developer. No man can give a formula for all plates and all conditions, but by care and observation all men who develop plates may learn to adopt proportion and strength of solution to the plate's requirement.

Now a word about making the image in the albumen paper. All printers know that silver makes the print—too many of them think the more silver used the better the print. As a rule, when anything is found to be wrong, more silver is doused as a remedy. Where forty grains of silver to the ounce of water is recommended by the albumenizer of the paper, who knows the proportion of salt used, and bases the requirements of silver upon that knowledge, the usual printer requires sixty grains. Just enough chemicals for plate or paper is better than too much.

The tendency to overdose is prevalent, and the results are similar upon plate and paper alike. In both cases the overdose gives harsh effects, forms a crust upon the surface, preventing the gradual and perfect conversion through the film, clogs the shadows, and flattens the lights.

It is not unusual to see prints with the shadows and dark parts heavily loaded with a bronzed mass and sometimes even a green fog from overdose. Gold is always subject to the same abuse, being sometimes used so strong as to destroy rather than produce good tones.

A little more knowledge among operators and printers of paper, and necessary conditions for successful work in their departments of photography, and a careful observance of the requirements would greatly lessen the mortality list in plates and paper.

Instantaneous Photography With Magnesium.

Instantaneous photography by artificial light is the latest novelty. Messrs. Gädicke & Miethe, at one of the recent meeting of the Berlin Society for the Advancement of Photography, exhibited a process which excited much interest. They used magnesium, but instead of slowly burning the wire, employed the metal in the state of a powder, mixing it with salts evolving oxygen, such as chlorate and nitrate of potassa. The mixture produced an exceedingly brilliant white light, burning with such rapidity as to permit the photographing of moving objects. Instantaneous pictures were shown, produced by the process. The burning can be accomplished in $\frac{1}{40}$ of a second.

The inventors have produced a very complete arrangement for avoiding the fumes. The powder is burned in a lantern consisting of a strong case with a glass front; the case being impervious to the fumes, none escape.

The lighting of the shadows is effected by tin foil reflectors, and the light softened by interposition of tissue screens.

The advantages are:

1st. The portrait photographer is independent of season or time of day, he has his light bottled up ready for use.

2d. With day light exposures in dull weather magnesium can be used to shorten the exposure and give a sparkle to the illumination.

3d. Portraits can be taken in ordinary dwelling rooms without skylight.

4th. Interiors can be better photographed by reason of the concentration of light.

5th. By the addition of sodium, lithium barium, etc., colors may be used in the reproduction of colored objects, paintings, etc. (Ortho-chromatic photography.)

Gelatino-Bromide Paper as a Basis for Finished Work.

G. HANMER CROUGHTEN.

(Continued from page 152.)

FINISHING IN WATER COLOR.

OF course in a paper like this I would not begin to give anything like an exhaustive set of directions for color finishing, so these remarks must be directed to those who know something about finishing in colors upon other surfaces. You will notice that in the two first methods of finishing I say nothing about preparing the surface of the paper, simply because there is no preparation required. For water colors the surface must be prepared by hardening the gelatine surface with alum. Without this hardening the surface is too receptive, the color being held when the brush just touches, and any attempt to blend or soften will result in pulling up the print from the surface of the paper; but after the application of the alum you can do anything with it. You can wash in or wash out, and even take out lights with water and rubbing with a cloth without raising the surface. The alum solution is 1 ounce powdered alum to 20 ounces of water. This is swabbed over the surface of the mounted print and left to dry, when it is ready for working upon.

Good effects upon vignetted prints can be obtained with very little expenditure of time by rubbing the background with colored pastel, the half hard kind, to which has been added just enough powdered pumice-stone to make the mixture feel gritty. Proceed exactly as described for crayon, You can rub one color over the other and so get effects of combined tints which are very pleasing. I set my palette for flesh painting with pink madder, vermilion, yellow ochre, cobalt blue, and the various browns for hair, etc. I just put a flat wash all over the flesh of a tint made by combining the pink madder with yellow ochre in different quantities according to the complexion, a dark complexion needing more yellow and a fair one more of the pink. Having put in my flesh washes, I next proceed to wash over the shadows with light washes of vermilion to kill the black of the prints. Next put in the carnations on the cheeks and lips; after this the face must be finished by hatching and stippling, the edges of all shadows being stippled with gray composed of cobalt and yellow ochre, the blue predominating on the forehead and upper part of the face, and the yellow on the lower part. All the usual methods of working water colors upon drawing paper or on any other photographic surface can be used on bromide paper after it has been prepared with the alum solution.

PASTEL.

There is no preparation of the surface needed for pastel. It takes hold of the surface as well as any other paper and can be worked by any of the usual methods. I like a good vigorous print with clean lights, and half tints and shadows not too black. I first lay in my dead coloring with soft French pastel, covering the photograph with the flesh tints as near as possible with the proper strengths, lightening up the shadows with vermilion and yellow, then hatching with half hard and finishing with hard Swiss crayons. An effect of great finish is obtained by this method.

OIL.

For painting in oil upon a paper print, a sizing must be used to prevent the oil in the colors getting into and staining the paper, which it will do in spite of the gelatine. The sizing solution is 10 grains of gelatine to 1 ounce of water, brushed evenly over the print with a broad camel's hair brush. As with pastel so with oil. I prefer a good clear strong print, and work somewhat in the same manner, viz., from the shadows to the lights, painting over the photographic shadow with warm transparent colors and using opaque colors on lights, half lights and reflexes, finishing with solid color on the high lights and cool grays on the edges of the shadows.

A Search for a Substitute for Hypo.

BY ARTHUR H. ELLIOTT, PH.D., F.C.S.

(*Continued.*)

HAVING tried these experiments upon silver bromide, it was natural that the iodide also should receive some attention. Using the same quantity of silver solution, but precipitating it with potassium iodide in the same careful manner to avoid an excess of the alkaline haloid, washing and draining, there was obtained for each experiment 0.5725 gram (8.835 grains) of silver iodide.

Starting with the usual hyposulphite solution (1 in 6), it required 78 cubic centimeters (2¾ ounces) of it to give complete solution of the silver iodide (0.5725 gram). Hence one part of silver iodide requires 22.7 parts of hyposulphite for solution in a bath of 1 in 6.

Another bath of hyposulphite, twice as strong as that given above, was now tried, and it required 37 cubic centimeters (1⅓ ounces) of it to give a solution of the same quantity of silver iodide. Therefore one part of silver iodide requires 21.5 parts of hyposulphite for solution in a bath of 1 in 3. It would therefore appear that there is no economy in hyposulphite used in strong solutions when silver iodide is considered.

As in the case of silver bromide, ammonia solution has no perceptible solvent action upon silver iodide. However, a bath was made containing one-sixth hyposulphite and 4.87 per cent. of ammonia, and this was used as a solvent for the silver iodide. It required 67 cubic centimeters (2⅓ ounces) of this solution to dissolve 0.5725 gram (8.835 grains) of silver iodide. Then one part of silver iodide requires 19.4 parts of hyposulphite for solution in a bath of 1 in 6 containing 4.87 per cent. of ammonia. Here is a slight gain (about eleven per cent.) in the use of ammonia, and although not so great as in the case of silver bromide, yet under some circumstances it may be of advantage.

Ammonium acetate in a solution containing 30 per cent. of the salt, and slightly alkaline with ammonia, had no appreciable solvent action upon silver iodide. But when ammonium acetate is used in a solution containing one-sixth of hyposulphite and 15 per cent. of the acetate (slightly alkaline with ammonia), it required 68 cubic centimeters (about 2⅓ ounces) of the mixture to dissolve the above mentioned quantity of silver bromide (0.5725 gram=8.835 grains). This is practically the same result as that obtained by the addition of ammonia to the hyposulphite.

Two other compounds were tried upon silver iodide, for this appears to be the most insoluble ot all the silver compounds with which the photographer has to deal, and it would be a great boon if some better solvent than hyposulphite of sodium could be found for it. A solution of sodium sulphite was made containing 1 part of the salt in 4 of water; but it had no perceptible solvent action upon silver iodide, even with the addition of a little ammonia.

Ammonium sulphite in a solution containing 1 part of the salt in 3 of water, had no apparent solvent action upon silver iodide, addition of ammonia making no change. But on adding a solution of sodium hyposulphite (1 in 3) complete solution was obtained after adding 50 cubic centimeters, the mixture already containing fifty cubic centimeters of the ammonium sulphite solution. It requires therefore about thirty parts of hyposulphite in a solution 1 in 6, with about sixteen per cent. of ammonium sulphite, to dissolve one part of silver iodide.

There are a few practical results that can be drawn from these imperfect and incomplete experiments upon the solubility of silver haloids. In the first place there is the determination of the fact (already known in a general way) that silver iodide requires 7.8 times more hyposulphite for its solution than silver bromide in a bath of 1 in 6. Second, addition of ammonia to the fixing bath increases the solvent action of the hyposulphite so that nearly twice as much silver bromide and eleven per cent. more silver iodide are dissolved than when ammonia is absent. Third, that the addition of certain salts to the fixing bath decreases the solvent action of the hyposulphite independently of dilution. Fourth, that the action of the different salts in the fixing bath is materially different with the two haloids.

HERR WEINER has determined that there are 10,000,000,000 molecules in a square inch of a film of silver; a single molecule in thickness.

Hydrokinone as a Developer of Dry Plates.

PRESENTED AT THE CHICAGO CONVENTION BY C. E. VON SOTEN.

THE various possible, and alas, oftentimes also nearly impossible forms of developers which, from the first practical application of the gelatine dry plate process up to the present day, have from time to time been brought forward, would fill many a page of photographic literature, and upon the experimental photographer has devolved the task of learning from careful and practical tests the characteristic qualities of each individual formula; of determining the amount of advantage gained from applying the one or the other, simple or modified, to certain special purposes; and of deducing therefrom the relative value as to general or special usefulness of the many different mixtures and components. The work, though highly interesting, has been arduous and difficult. A golden kernel of wheat has been brought to light out of an abundance of worthless chaff, and too much praise cannot be bestowed upon such men as Captain Abney, Dr. Eder, Carey Lea, and many others, for the invaluable services which, through their untiring energy on the field of photo-chemical research, they have rendered to our beloved profession. Yet with all due appreciation of these scientific investigations and the many valuable discoveries to which they have led, it appears to me that no line of research in photographic chemistry has brought less tangible benefit to the practical photographer than the dry plate developers; ferrous oxalate and alkaline pyro, in more or less modified form, being to-day, as they were five years ago, the only reducing agents in practical use with more than ninety-five per cent. of all the photographers on the globe. Here then seems to be a chance for the introduction of something comparatively new, and on that ground I hope to be pardoned—this being my first publicly committed offense in this direction—for bringing to the notice of this Convention a developing agent which, though photographic periodicals have once or twice mentioned it, and though its name, hydrokinone, is undoubtedly familiar to many, is actually so very little known, that a few words in its favor may perhaps tend to bring it into more general use, and eventually gain for it the appreciation which it so highly deserves. The chief reason for its present lack of popularity is probably its rather high price, but were its excellent qualities better known, I have no doubt that its apparent expensiveness would no longer deter photographers from engaging its valuable services, for in the end hydrokinone will prove just as cheap as pyro, and perhaps more so than ferrous oxalate.

Hydrokinone (C_6H_4,OH_2), a derivative of cinchonin, is an hydrocarbon of a composition similar to that of pyrogallic acid (C_6H_3,OH_3), and its proportions also bear a strong resemblance to those of this, our most important oxidizer. Its capacity as an oxygen absorber is even greater than that of pyro, the comparative energy of my normal developers being as nine to seven in favor of hydrokinone. But this affinity for oxygen is not as greedy as that of pyro, and its action is therefore less violent and under better control, and in this property of applying its great reducing force slowly, gradually, without unnecessary waste and without exhausting its strength from the outset, I find the chief advantage of hydrokinone over pyro. Its developing action, as said before, is necessarily slower, but on account of the great constancy of its reducing power, marvellously effective, every molecule of the exposed film, no matter how feeble the impact of light, having to submit in due time to its persistent and apparently untiring energy. Its keeping qualities too, whether in stock solution or mixed developer, are excellent. I have a case on record when with six ounces of developer, containing 36 grains of hydrokinone, I developed 5 x 8 plates, transparencies and line-work negatives, without any addition whatever, by merely slightly increasing the time in the camera, after which the mixture was bottled, and served as an excellent "starter" for several subsequent exposures. A patent rubber-stoppered beer bottle full of the stock solution, put up on January 5th and kept in a dark room at a temperature varying from 50 to 90 degrees F., is to-day almost colorless and as good as when freshly mixed. Hydrokinone is but sparingly soluble in cold water, fifteen grains per ounce being about a saturated solution, but this is amply sufficient for practical use.

Another excellent quality of hydrokinone is the beautiful tone of its deposit, a fine, velvety engraving black, and a magnificent clearness of shadows, which for transparencies, lantern slides and line-work negatives especially, is unequaled by any other developer of my acquaintance. Alum and restrainer are unnecessary. The addition of bromide changes the tone to a rich brown, but it should be made very cautiously, as the addition of a ten per cent. solution will exercise quite a perceptible retarding action and render the mixture rather unfit for future use. A few drops of a one per cent. solution of hypo will to some extent restore the energy of the developer, but such doctoring is, at the best, somewhat hazardous. My formula, which after much experimenting I have found after more than four years' practice to be thoroughly reliable and in every respect satisfactory. is as follows;

SOLUTION NO. 1.

Soda carbonate . . .	50 grains
Water	1 ounce

SOLUTION NO. 2.

Hydrokinone, . . .	12 grains
Soda sulphite . . .	60 "
Water	1 ounce

For use mix

No. 1	1 ounce
No. 2	2 ounces
Water	1 ounce

The water is added either warm or iced, according to the season, in order to give to the developer the proper temperature. The image will make its appearance rather slowly, on a properly exposed plate in about two or three minutes; but, once started, development will proceed rapidly and progressively to the attainment of the finest detail and any required density. The film will never become stained under the most protracted development, and, owing to the strong tanning action of the hydrokinone, frilling, even in warm solution, is exceedingly rare. The same conditions that govern pyro development with regard to intensity and detail, hold good in the case of this reducing agent, an increase of hydrokinone giving strength and dilution producing detail. The amount of alkali in the formula given above being already large, I do not favor an increase of it with a view of forcing up detail, my mode being to obtain the proper intensity first and then, if required, finishing up for fine detail in water made slightly alkaline with soda carbonate. The plate is, of course transferred to this without washing.

I hope that some of the fraternity may give this developer a thorough trial and succeed with it as well as I have done.

A NUMBER of new elements have recently been announced, some of which may be called into service in photography ere long.

The Origin and Technology of Photographic Chemicals.

BY FRANK H. ROSENGARTEN.

Sixth Paper.—Carbonate of Soda and Carbonate of Potash.

Of all the chemicals produced in the world the soda and potash salts take the greatest amount of the labor and capital and plant in the varied industries in chemical commerce. These salts are necessary in almost every branch of manufactures, directly or indirectly, and are consumed in enormous quantities. The great source for them is in salt and chloride of potash, as we said in the last number of this journal. Notwithstanding the use of tens of thousands of tons of soda and carbonate of soda and carbonate of potash in this country, until a very recent date, not a pound of these products was made in the United States! This may sound most strangely, knowing the enormous production of salt, but it is nevertheless true, owing to the higher cost of labor and everything involved in manufacturing in this country compared with Great Britain and the continent of Europe. Until a very recent period, all the carbonate and caustic sodas were made by a process discovered by Le Blanc in 1784. The first factory was established near Paris, in 1790, and since then immense works have been created in England, Scotland, Germany, Belgium and France, but none in the United States. The Le Blanc process consists in the decomposition of chloride of sodium by mixing with sulphuric acid, forming sulphate of soda and hydrochloric acid. The hydrochloric acid goes off in gaseous form, either to be utilized in making bleaching salt or in old times was wasted, the sulphate of soda is dried in large iron pans. To form the carbonate, this sulphate of soda is mixed with lime and charcoal and heated in great furnaces, at very high temperature and worked very much like the method of blooming iron. When the conversion is complete the product is in great black cakes called "black cake," consisting of a mixture of carbonate of soda, sulphate of lime and possibly some unburned charcoal. To separate these, the black cake is washed thoroughly with water, which dissolves the carbonate of soda, leaves the sulphate of lime and charcoal residue. The solution is filtered off, concentrated in suitable vessels to the proper density and allowed to cool very slowly, to produce the beautiful clear white crystals we know as washing soda. These processes involve handling and rehandling the stuff so often and under such difficult surroundings, the labor is very arduous and dangerous, owing to the heat and the noxious gases and danger of burning from splashing of the soda.

Not long ago a process of manufacture was patented by Brunner and Moud, Belgian chemists, invented by Solvay, which gives almost chemical pure carbonate of soda, and which involves immensely less labor and difficulty. Practically, the process consists in mixing chloride of sodium and bi-carbonate of ammonia, under pressure in large vessels and under constant agitation. To do this, salt is dissolved in water, heated, and a stream of ammonia gas and a current of carbonic acid passed through until the proper amount is used to convert the soda into bi-carbonate and the ammonia into chloride. As bi-carbonate of soda is comparatively insoluble, at the proper time the agitation is stopped, and this salt settles to the bottom of the vessel, and is removed, washed and finished. The chloride of ammonia liquor is utilized to reproduce gaseous ammonia, to be used again, by mixing with lime. Thus the only product wasted is the chloride of calcium thus formed, while in the Le Blanc method the sulphuric acid is lost and the labor is ten-fold. Owing to this cause the former manufacturers of carbonate of soda have been almost destroyed, and a factory under the Brunner-Moud patents has been begun in this country. The bi-carbonate of soda as obtained above is thoroughly washed and then heated in great pans to a moderate temperature, whereby the excess of carbonic acid is driven off, and then the process is complete. Simple as this process may seem, it took many years to perfect, though now the patentees are earning great fortunes by their persistence. There is a very fine quality of bi-carbonate of soda made from a mineral which comes from Greenland, called "Kryolite," a fluoride of aluminium and sodium. This mineral is ground and then roasted with lime, forming fluoride of calcium, the alumina and soda forming a weak compound, which is easily decomposed into carbonate of soda and alumina.

In commerce, carbonate of soda comes in many forms—crystalline, granular, and powdered—and is consumed in glass-making, soap works, paper pulp manufacture, and innumerable other industries, including our own little photography! But we must close here, and tell a word or two about carbonate of potash. As we said before, it is either produced from plants or from a mineral, chloride of potassium by a method similar to that of the Le Blanc process, and comes in a white granular form, very soluble in water and with an alkaline reaction.

Hydroxylamine as a Developer.

Hydroxylamine is a comparatively new chemical compound, discovered among the products of the reduction of nitric acid by means of tin and hydrochloric acid.

Its wonderful reducing properties suggested its employment in photography. Dr. Eder has made use of it as a developer, for calling forth the latent image upon bromide and chloride of silver.

Its extremely high price—nearly five dollars an ounce—has hitherto been the great drawback to its use, notwithstanding its powerful action.

Lately, a method has been found to produce it much cheaper, so that we hope soon to see its general employment.

Egli and Spiller recommend the following formula for developing Gelatinio-Bromide plates:

A

Chloride of Hydroxylamine,	1 part.
Alcohol, ...	15 "

B

Sal Soda, ...	1 part.
Water, ...	8 "

Developer for use consists of:

Water, ...	60 parts.
B, ...	5 "
A, ...	3.5 "

The color of the resulting negative is steel gray, similar to that of a wet plate developed with iron, and the printing qualities are excellent.

The developer keeps clear a long time, thus affording a great advantage over the easily discolored pyro developer.

Bromide of Potassium is used as a restrainer, and Citrate of Soda may be employed as a retarder.

Beautiful lantern slides and transparencies, may be made with the use of Hydroxylamine, as a *developer* of Chloride of Silver Gelatine plates.

According to Spiller, the following gives beautiful tones for transparencies upon chloride plates.

A

Chloride of Hydroxylamine,	15 parts.
Alcohol, ...	480 "

B

Carbonate of Potassa, . . .	6 "
Water, ...	8 "

C

Ammonia, ...	1 part.
Water, ...	8 "

The chloride plates are exposed for ten minutes before a gas burner at a distance of one foot, and developed in the following:

A, .	15 drops (measured minims).
B, .	40 " " "
Water,	5 drachms.

David & Scolik, recommend for chloride positives:

Hydroxylamine Chloride, (1.15)	30	parts.
Carbonate of Potassa, 30 p. c.	4	"
Water, ...	30	"

The high lights remain pure, and the tone is beautiful.

Hydroxylamine will probably play an important part in the future developement of dry plates.

Hydrochinone in Connection with Pyro-Gallic Acid as a Developer.

Philadelphia, Oct. 7, 1887.

MR. JOHN BARTLETT,
Editor of the *American Journal of Photography.*

DEAR SIR:—Try the following and let me know what you think of it:

Hydrochinone	1 gr.
Pyro	2 grs.
Carbonate of Soda	6 grs.
" " Potassa . . .	2 grs.
Sulphite of Soda (Crystals) .	18 grs.
Water	1 oz.

I believe the admixture of hydrochinone and pyro is a novelty, and that it will be of interest to your readers.

From what few experiments I have made I am led to believe that hydrochinone inparts some good qualities to the developer, giving the negative a warm, gray tone, with great clearness in the shadows. The developer will also remain clear considerably longer time than when pyro alone is used.

Sincerely Yours,
JOHN G. CASSEBAUM.

Acting upon Mr. Cassebaum's suggestion we made a developer of the proportions recommended in his formula, and were delighted with the beautiful results. We obtained a brilliancy and richness in the high lights, with fine graduation of tone, and a remarkable clearness in the shadows. It may be necessary at times to increase the amount of pyro and hydrochinone to obtain more density.

Hydrochinone will be found to be a valuable addition to our Pyro developer, and we recommend its use to all who delight in producing beautiful negatives.

Some Remarks for the Successful Employment of Obernetter's Process for Converting a Transparent Positive into a Negative. (Making a Negative from a Negative Direct.)

Fr. Muller, of Munich, at a recent meeting of the Wanderversammlung at Stuttgart, gave the results of his experience with the late J. B. Obernetter's Transformation Process.

The negative which it is intended to enlarge is placed reversed in the frame of the enlarging camera; that is the film side turned away from the objective; the image is focussed to the required size upon the ground glass, and the plate exposed for a long time. The development is effected with ferrous oxalate, and continued until the positive image is distinctly visible upon the back of the plate. After thorough washing the plate is repeatedly flowed with chromic acid solution until the surface becomes quite white again, so that on looking through it no dark spots are visible, and only the dim outline of the expectant negative in view. After another thorough washing the plate is flowed over several times with a solution of ammonia, again washed and it is ready for the second exposure to white light for a few seconds. It is then reimmersed in the former used developer (ferrous oxalate).

When sufficient density is obtained it is fixed and washed in the usual way, and the shadows cleared up with dilute hydrochloric acid quickly poured over it and again it is well washed.

The most important features of the process is the selection of a suitable gelatine plate. It must be upon the best plate glass, the emulsion thin and uniform, and one poor in gelatine, inasmuch as an excess of gelatine greatly retards the process, and even prevents success.

The exposure is to continue so long that on development the image flashes up and the plate immediately blackens, and after two minutes the coloring penetrates to the back.

The chromic acid solution renders the plate insensible to white light, while the ammonia resensitizes it.

No notice is to be taken of a slight fog which appears on the second development, and which disapears with the clearing hydrochloric acid solution. It will not injure the brilliancy of the resulting negative in the least.

Some patience and experience is necessary to successfully perform the operation, but the labor is well bestowed in the results yielded, which are undoubtedly the most beautiful obtained by any enlarging process.

Fr. Muller employs the following solutions:

1. 1000 Water.
    200 Bi-Chromate of Potassa (in 500 parts hot water).
    1000 Nitric Acid (strongest), diluted with 15 parts water.
2. 1000 Water.
    20 Ammonia (strongest).
    20 Bromide Ammonium.

The Photographic Society of Philadelphia.

A stated meeting of the Society was held Wednesday evening, October 5th, 1887, with Vice President, John G. Bullock in the chair. The Committee on

Membership reported the election of Messrs. Edward P. Alexander and T. Bowman Price as active members; Mr. John G. Cassebaum, who was present by invitation, read a paper on the Gallic acid and silver intensifier as applied to gelatine plates. The paper was listened to with great interest, after which specimen plates intensified in this manner were shown and the process demonstrated by actual experiment; Vice President Bullock and other members who had tried the method spoke highly in its favor. Mr. Carbutt showed a number of prints made from over-exposed plates, originally so thin that mercurial intensification had failed to produce printing density. A further application of gallic acid and silver, resulted in great increase of density and excellent prints were thus obtained.

Dr. J. M. Jordan showed one of Cooper's enlarging lanterns and illustrated its use by making some enlargements with Anthony's bromide paper. The light (which is supplied by a kerosene lamp fitted with a "Duplex burner) passes through two condensing lens and thence through the negative. By means of a small portrait lens the image is projected against any perpendicular surface to which a piece of bromide paper may be attached. By means of the lantern shown, cabinet sized negatives could be enlarged life-size or over. A valuable feature of the apparatus was that by detaching the lamp, the camera portion could be adjusted in a window so as to use daylight as a source of illumination. When so arranged negatives as large as 8x10 could be enlarged from. The camera could be used for copying purposes, having extra long bellows and by further changes in the adjustment an excellent optical lantern was produced. The paper used by Dr. Jordan was much more rapid than most brands of bromide paper and it was claimed that equally good results could be obtained from negatives which varied greatly in density.

Mr. Wood stated that he had lately examined some film negatives made about a year ago and had found them covered with mould.

Mr. Walmsley thought the trouble was caused by neglect to coat the films on both sides with thin collodiom. This would keep out the moisture which probably caused the mould and was now recommended by the makers.

Mr. Bullock called attention to a defect which he had frequently noticed of late in plates of several different brands. Minute particles of chrome alum seemed to be present in the film producing dark spots in the negative, sometimes partially redissolving in the washing and causing a comet-like streak on the plate. He suggested that they were caused either by careless filtration or perhaps crystalization of the alum in the emulsion.

Mr. Carbutt thought the quantity used was to small for the latter suggestion to hold good.

Dr. Wallace called attention to an article in a recent German journal, which gave some new details of the Obernetter process for transforming a transparent positive into a negative. The positive must be greatly over-timed, and over-developed in ferrous-oxalate. After washing, a weak solution of chromic acid is applied, which is in turn washed off and a solution of ammonia applied, the sensitiveness to light being thereby restored. The plate is then exposed to white light for a few seconds and re-immersed in the ferrous-oxalate. The negative image now slowly appears and when sufficiently strong, the plate is fixed as usual. To succeed with this curious process, the plates must be coated with an emulsion that contains but little gelatine (gelatine-arm), and some practice is necessary before perfect results can be expected.

The great over-exposure, and thorough development following, are mentioned as important points.

Mr. W. D. H. Wilson showed one of Gray's new model vest cameras, made for taking four pictures on a plate, each 2 5-16 in diameter, a convenient size for making lantern slides by contact. The camera was provided with a circular case in which it could be carried and used as an ordinary detective camera, its shape and appearance being such as to attract but little attention.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

Sensitometer Numbers.

SINCE the introduction of dry plates it has been desirable to have a standard measure of sensitiveness by which the plates can be graded, and several instruments and contrivances are used for this purpose.

The Warnerke sensitometer is used by many manufacturers, but as the Warnerke numbers do not give the sensitiveness of the plates in direct proportion to the numbers, I, and many other manufacturers, have chosen a system, taking a certain rapidity (of the old wet plate) as a unit, so that the time of exposure can be calculated more easily by the given numbers.

The advantages of knowing the sensitiveness of the plates when making the exposures is apparent, but so far there is no positive means of determining it accurately as there is no standard light which always remains the same, and, consequently, no two sensitometers exactly alike, and, therefore, all measurements can only be approximate, and never as exact as the weighing of groceries or measuring of dry goods can be done. As desirable as it might be, if a plate marked a certain number would always be of the same speed, it will always remain "a consummation devoutedly to be wished for."

The sensitometers used by different manufactures are not exactly alike, and besides this difficulty there are other important factors to be considered.

Firstly, there will sometimes be a slight difference in the sensitiveness of plates of one emulsion, as the emulsion may gain in rapidity while it is kept liquid before it is used up.

Secondly, It often happens that the plates grow more rapid after being kept a while, so that sometimes plates which were originally 20 sensitiveness will be 25 or 30 when tried again after a lapse of several months.

With all these facts in view the sensitometer numbers marked on the plates can never be relied upon as absolutely correct and nothing but an actual trial can give positive certainty as to the correct time of exposure they should have.

G. CRAMER.

ST. LOUIS, MO., OCT. 7th, 1887.
To the Fraternity.

The P. A. of A. has voted to Jex Bardwell,of Detroit,the sum of one hundred dollars, in consideration of his services to us all in connection with the defeat of the Bromide Patent and the Shaw Silver Saving Patent. All the older members of our profession will recollect the efforts of the holders of these patents to tax the fraternity many thousands of dollars, and the great annoyance caused thereby, and as Mr. Bardwell is now in old age and in need of assistance, it is but just and proper that something be done to appreciate his services to our craft. Our association has started the matter, and all photographers, members or non-members, should contribute something and make up a sum sufficiently large to place him above want in his old age.

I am ready to do my share, and suggest that all editors of photographic journals will assist to carry out this benevolent purpose by receiving contributions and receipt for them through their journals.

The cause is worthy, let us all lend a helping hand, and by speedy and united effort give that assistance which, coming promptly, is double effective.

Fraternally yours,
G. CRAMER, Pres. P. A. of A,

Contributions to this most worthy cause will be received by Thos. H. McCollin, acknowledged and forwarded to Mr. G. Cramer.

We hope the fraternity will show a measure of gratitude for Mr. Bardwell's great service by a generous response to the appeal.

◆

THE recent improvements in the Blair camera make it one of the best products of American skill. It unites so many good qualities, is of such excellent workmanship and finish, and capable of so manifold uses, by means of its adjusters, extensions, etc., that we are not surprised that the company has been obliged to open a Western depot to supply the greatly increased demand. It is located in Chicago, 205 State street, and is under the management of Mr. E. Clay Blair, whose good business tact and genial disposition will insure many pleasant relations.

◆

THE high endorsement which the gallic acid and nitrate of silver intensifier received from such practical photographers as Mr. John Carbutt, Dr. Wallace and others, of the Photographic Society of Philadelphia, should be sufficient warranty for its efficiency in building up weak gelatine negatives.

Mr. Carbutt exhibited a number of prints from negatives strengthened with the intensifier—we doubt if any one could distinguish them from perfectly developed plates.

Mr. Carbutt also exhibited several instantaneous pictures taken upon his orthochromatic plates, in which there was a rendering in beautiful gradation of those colors which on an ordinary plate are generally translated as an unmeaning smudge of black.

We had seen examples of excellent work upon Carbutt's orthochromatic plates, but never before instantaneous pictures.

◆

RATHGEBER FUR DEN POSITIVOPROCESS AUF ALBUMINPAPIER, is the title of a work by Dr. E. A. Just, of Vienna, Austria.

The name of Dr. Just attached to a photographic book is evidence enough of its value without any further recommendation. But we cannot refrain from speaking of the present publication. It is one of the most comprehensive books on the subject we have seen, and the amount of valuable information it contains is astonishing. The formul given are full, and the methods of manipulation not only give the means for achieving success, but point out the errors which may occur, and the means of obviating and correcting them. No point in any process seems to have escaped the scrutiny of the author, who is evidently thoroughly acquainted with the practical working of the various methods.

◆

AT a recent meeting of the Photographic Society of Philadelphia, Mr. F. T. Fassitt, one of the oldest members of the organization and a gentleman of extended experience in Photography, called attention to the singularly bad wording of a formula given in the *British Journal Almanac* for reducing over-intensity of negatives. The wording was as follows: "Dilute ordinary chloride of lime with half its bulk of water and immerse the negative." Mr. Fassitt complained that this was quite impracticable, a slimy mess resulting, which was unfit to apply to any photographic plate, and very properly remarked that numerous formulæ and recipes as printed in our journals and text-books were worse than useless, owing to the careless and indefinite manner in which they were given.

The editor of the *British Journal* in a recent issue attempts to give Mr. Fassitt a rap over the knuckles by reminding him that the word "dilute" refers to liquids only, and that therefore the chloride of lime mentioned must be *liquid chloride of lime!!* Such a preparation is certainly unknown in this country, and on comparing notes with a veteran English photographer we find (just as we expected) that no such article is commonly used in England. This seems to us to be a very poor way to evade the matter on the part of the editor of the *British Journal*, and we will hint to our learned colleague that inasmuch as the *Almanac* is largely read here and in other countries besides England, it will be well both for him and for the publishers to see that such loosely worded formulæ are corrected before going to press, and put into a "tongue understanded of the people."

◆

THE first annual exhibition of the Photographic Society of India, will be held in Calcutta early in January, 1888, and will continue for a period of about three weeks.

Medals will be awarded by judges to be appointed by the society.

Photographs need not be framed, but they must be mounted, and in the hands of the Secretaries before January 1st.

Carriage on exhibits must be prepaid, and full instructions given as to return or sale.

Photographs to which medals are awarded will become the property of the society, and the society reserves the right of ordering further copies to be printed for distribution among members before a medal is despatched. The extra copies ordered will be paid for at fair rates.

All exhibits to be forwarded to J. S. Gladstone and A. Flemming, Joint-Corresponding Secretaries Photographic Society of India, 8 Clive Street, Calcutta.

The following medals will be open for competition:

His Excellency the Viceroy of India's own special Medal and the Society's Gold Medal for the best photograph in the Exhibition.

A Silver Medal will be held at the disposal of the Judges.

We trust American photographers will avail themselves of this opportunity to make a fine exhibit of their work.

The inducements are great. The possession of the Viceroy's Medal as well as that of the Society, are indeed prizes well worth laboring for. Undoubedly the Exhibition will prove a great success. We have had the privilege of seeing some of the work of the amateurs of India, and we can assure you it ranks high for artistic qualities and technical excellence.

THE mount bears the same relation from an artistic point of view, to the photograph, as the frame to the painting.

No matter how beautiful in harmonies the work of the artist may be, it will not produce as favorable an impression unframed, as it would in an appropriate frame to isolate it from the surroundings.

And so the photograph, though perfect in detail, rich in gradations and beautiful in finish, must have a suitable mount for a setting to its virtues.

Taste of late years, has demanded an entire change in styles. The old-fashioned gingerbread and scroll-work, we are glad to say, have gone to feed oblivion, and very beautiful patterns and delicate shades have taken their place.

A recent visit to the extensive factory of the Philadelphia Card Manufacturing Company, at Lansdowne, Pa., gave us an opportunity to see the interesting manner in which the raw material is worked up into the perfect cardboard, ready for the photographer.

The amount of work necessary to produce the final result is surprising, and were it not for the ingenious machinery employed, we fear the cards would not be so cheaply furnished.

Enormous screw presses, working under tons pressure, compact the numerous laminæ of the paper into the hard solid card. These great sheets are rolled and pressed to secure a uniform hard surface; they are then ready for the coloring, which is effected also by machinery. Great care is required to secure uniform tints, and also to make the color perfectly waterproof, so as not to rub off when the dampened photograph is mounted upon it.

The cutting machines, which regulate the sizes, work with ease and regularity, and the machinery for beveling the edges, effects the work with the greatest nicety.

Finally the cards are gilded, embossed and printed in various designs.

BY the courtesy of the Scovill Manufacturing Co., of New York, we have received a copy of their recent publication, "Photographic Printing Methods," by Rev. W. H. Burbank.

This work is much more than a compilation, although the author modestly claims no more. Of necessity he has drawn from various sources, but the drafts have been so well digested that the matter is his own, and he has the faculty of conveying his ideas in a clear, concise and forcible manner. The ground covered is extensive—from blue prints to photo-ceramics. It contains a fine frontispiece by the Photogravure Co. of New York, and an exellent bromide print on the Eastman paper.

FÈNYKÈPÈSZETI LAPOK.—Those of our readers who understand the Hungarian language, will be pleased to know that we have just received a journal printed in that tongue and bearing the above title, which rendered into English would mean "Photographic Leaves." The contents of the present number are:

1. Photographic Æsthetics, by Dr. A. Sarffy.
2. Gelatine Emulsion for Amateurs.
3. Landscape Photography.
4. Origin and Development of the Dry Process.
5. Secrets of the older Photography.
6. Miscellaneous — Editorial Correspondence, Free Insertions, Notices, etc.

The journal is published by Francis Veress at Klausenburg, Hungary, and is very well made up. The present number contains a pretty skating scene on chloride emulsion paper.

DESPITE the beautiful examples of natural lighting accessible to photographers, the average American operator prefers the bizaare effect of violent illumination: that is to judge by the majority of the work at the Chicago Convention.

SHOULD any of our readers desire to communicate with the genial treasurer of the P. A. of A. they must remember that his present address is No. 923 Main street, rooms 5 and 6, Kansas City, Mo. Mr. G. M. Carlisle also sends us an interesting pamphlet descriptive of the rapid growth and prosperity of Kansas City.

Reducer for too Great Intensity in Gelatine Negatives.

Per-chloride of Iron	60 grains.
Citric acid	120 "
Chrome alum	40 "
Water	32 ounces.

Immerse the dense negative in above solution for a few minutes; then remove to solution of hypo and water, ordinary strength, and after a few seconds, note the degree of reduction. This reducer is very energetic, and if the plate is allowed to remain too long in the hypo, the image will entirely disappear. Wash thoroughly after removal from hypo.

OCTOBER BARGAIN LIST.

Accessories:

1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	$4 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Drapery	4 00
1—Drapery	6 00
1—8x10 Osborne Interior, new, light left of sitter	16 00
1—Pharaoh Position Chair	18 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, light right	15 00
1—10 in. Rotary Burnisher,	12 00
British Journal Almanacs for 1878	20
Photo Mosaics for 1883,	20
1—No. 72 Osborne bridge good as new,	8 00
1—8x10 Plain ground	4 50
1—Bryant rustic gate	4 00
1—Seavey balustrade	14 00
1—Queen Anne baby lounge	10 00
1—Rustic corner chair	6 00
1—8x10 Perfect camera stand	6 00
1—Knickerbocker stand, with 14x17 top	12 00
1—8x10 Osborne's interior background, new, light left	20 50
1—8x10 Seavey's interior background, new, light left	20 00
1—8x8 interior background	15 00
1—8x10 Hough exterior ground	16 00
1—4x8 Osborne's tide slip	7 50
5x8 orange glass developing trays	35
Wood drop shutters	1 50
Negative boxes, odd sizes, each	20
1—Adjustable arm Position Chair	12 00
1—Position Chair, rising back	8 50
1—6-inch Burnisher	4 00
4¼x5¼ Beveled Edge Cards, per dozen	10
12—5x8 Flat Printing Frames, in good condition, each	45
10—8x10 Flat Printing Frames, good condition, each	57
1—14 in. Eureka Burnisher	20 00
1—Osborne style, new	4 50
1—4oz. Porcelain mortar and pestle	35
1—6 in. Porcelain mortar and pestle	50
1—W. I. A. Ruby lantern	35
1—Hydrometer	40
2—4x5 Japan trays and plate lifter, lot	20
Pearl leads, the best retouching point in the market, each	15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each	1 35

Camera Boxes:

1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—4x5 Anthony's View Camera and 2 holders, lens and tripod	11 50
1—6½x8½ camera, with ratchet bed, ground glass and wet holder	6 00
1—Half-size Ferrotype box, with four 1-9 size tubes	15 00
1—3¼x4¼ Bicycle Camera, holder and case	9 00
1—4x5 '76 outfit	15 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new	44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new	46 00
1—14x17 Double Swing Portrait Box	40 00
1 · ¼ size Camera, and wet holder	3 50
1 · ½ size Portrait Camera	5 00

Lenses:

1—¼ size Darlot Gem Lens	3 00
1—Finder	3 25
1—Prosch Shutter, No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched pair imitation Dallmeyer Lenses, per pair	12 00
1—5x8 Dallmeyer View Lens	15 00
1—Woodward Condensing Lens.	10 00
1—4x4 Darlot Globe Lens	25 00
1—4x4 " " "	20 00
1—5x8 Abendroth wide angle view	

lens	18 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—½ size C. C. Harrison portrait lens	5 00
1—¼ size portrait lens	3 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—10x12 Dallmeyer Rapid Rect. Lens	50 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	40 00
1—4x4 Voigtlander Portrait Lens.	25 00
1—Extra 4x4 Chapman Portrait Lens	20 00
1—8x10 E. A. View Lens	5 00
2—18x20 Harrison View Lenses, each	20 00
1—5x8 Darlot View Lens	2 00
1—4x5 Harrison & Schnitzer View Lens	2 00
1—Ross View Lens	5 00
1—H. Fitz Double View Lens, revolving stops	8 00
1 pair 4x5 Dallmeyer R. R. Lenses	30 00
1—5x8 R. O. Co. Lens, good as new	3 00
1 pair Waterbury Stereo Lenses	4 00

WANTED—A Ferrotype Camera with 37 Lenses, to make 36 pictures on a 5x7 plate with one exposure.

Also a Ferrotype Camera with 18 Lenses, to make 18 pictures on 5x7 plate with one exposure. Address A. R. J., care of Thomas H. McCollin & Co., 635 Arch St., Phila., Pa.

WANTED—One-sixteenth size Gem-Tubes. T. H. McCOLLIN & Co.,
635 Arch Street.

WANTED—A young man would like position under the light: gained his knowledge of the business at Gilbert & Bacon's, Phila. Address K., care Thos. H. McCollin & Co., 635 Arch St., Phila, Pa.

GET the new C. B.—Combined Permanent Intensifier and Reducer for Gelatine Plates.

THOS. H. McCOLLIN & Co.,
635 Arch street, Phila.

WANTED an Operator, one capable of managing a gallery; or a young man to learn the business. Apply Thos. H. McCollin & Co., 635 Arch St., Phila., Pa.

Our Illustration.

The beautiful reproduction, by the Ives process, which graced the July number of our journal, has received so much praise that we have secured, through the kindness of the Crosscup & West Engraving Company, another picture reproduced by this succesful method.

The view represents one of the many picturesque bits of landscape found along the Wissahickon, not more than fifteen minutes ride from the very heart of the busy city of Philadelphia.

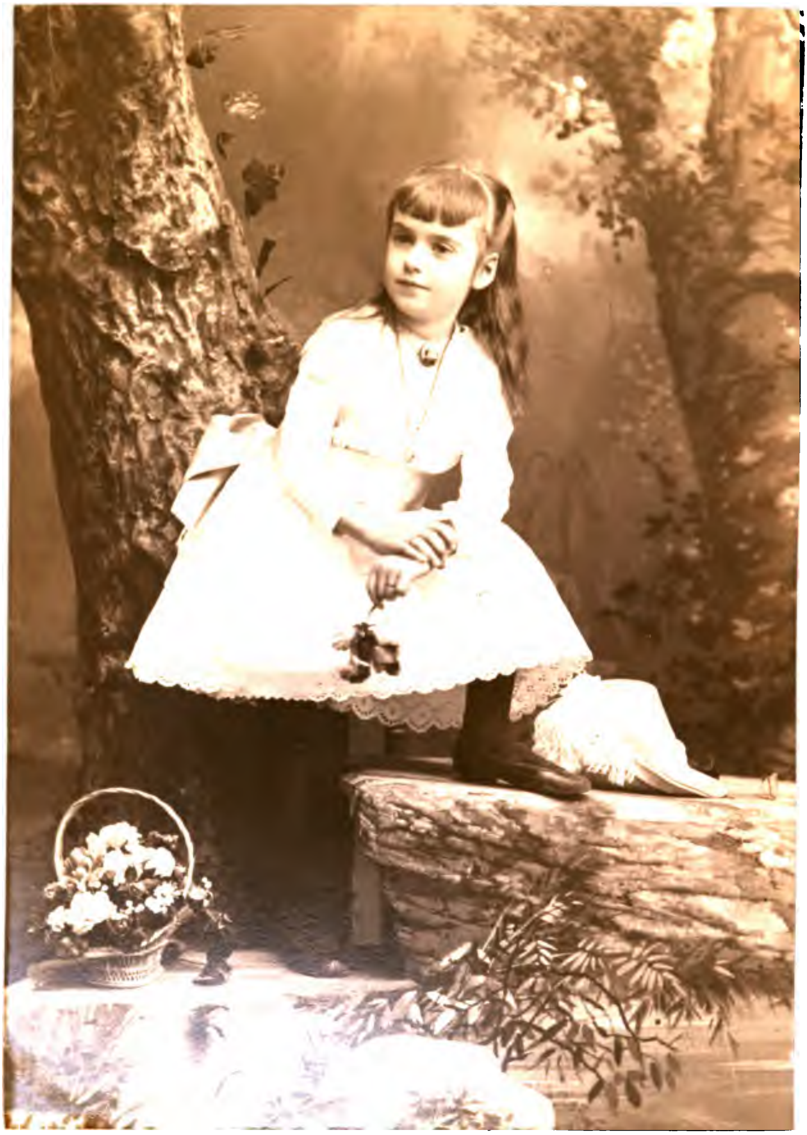
It is a direct selection from nature, without any artful modification, and yet just suited to the purposes of art in the balancing of the masses of the lights and shadows, and in the harmony of the various elements of its composition.

NEW

BACKGROUNDS AND ACCESSORIES.

The present complete lines are all new and very fine in design and finish. The Papier Mache Accessories are painted in flat oil, which retains all the beauties of water color without any of its derangeable features. They will not rub out or smell, and are vermin proof. Backgrounds painted in oil, if desired. I am making a set of Permanent Mixed Paints for touching up damaged backgrounds and Accessories. Photographs mailed on application, but must be returned.

J. W. BRYANT, LA PORTE, INDIANA.



LITTLE EDNA.

NEGATIVE BY J. WEB. CORNELIUS, LEWISBURG, PA.

PRINTED ON MORGAN'S BRILLIANT ALBUMEN PAPER.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, NOVEMBER, 1887. NO. 11

AMERICAN

JOURNAL OF PHOTOGRAPHY,

PUBLISHED MONTHLY.

$1.00 per Annum, in Advance.

Photographing Snow and Ice.

BY ELLERSLIE WALLACE.

THE season is fast approaching when the majority of photographers either put away their cameras entirely, or devote themselves to indoor work. This we feel to be a mistake, for not only does nature present herself in a brilliant and attractive guise during winter, but the fact of the landscape being nearly if not quite monochromatic in character renders it peculiarly well adapted to the camera.

It will sometimes happen that the landscape when bare of foliage, and no snow on the ground, will be attractive enough to photograph ; this would be true of such places as cannot be very distinctly seen in summer owing to the luxuriance of the foliage, and particularly so of buildings closely hemmed in by trees. But laying this aside as almost self-evident, we ask those of our readers who have never attempted out-door work in winter, not to let the coming season pass by without experimenting a little in snow and ice photography.

The outfit required will be as usual, excepting that even greater precautions must be taken against stray light gaining access to the film. Where the light is reflected from masses of snow or ice, so brilliant that the eye cannot bear it, it is plain that everything must be done to keep the image in the camera pure, not allowing reflections or false lights from the woodwork or brasswork to reach the plate. If a haze or sheen be observed while focusing, it will be well to examine the lens, stops, and whole interior of the camera before exposing the plate, and extra care must be taken when the door of the holder is drawn so that no light gets through the slot. Many a plate might be saved from fog if the focusing cloth was thrown over the back of the camera while the door is being drawn. We have sometimes heard it objected to this, that the cloth might shake the tripod or throw the camera out of position, to which we can only answer that with things in such a rickety condition no good work ought to be expected.

The two principal things upon which success in photographing landscapes with snow and ice will depend, are, the lighting of the view, and the proper timing of the plate. To obtain a good negative of —let us say—the ice-bridge at Niagara, the very first step would be to see to the angle at which the light struck the prominent masses of ice, and the amount of shadow cast by them upon the more even surfaces, We should look carefully to see that these prominences were really made to relieve themselves against the shadows or other parts, and did not merely lap into one another in a tame manner. It might very well happen, however, that while such lighting gave effective relief and picturesque quality to the view, the relative contrast between the high lights and deep shadows would be so excessive that no plate could render it without great solarization on the one hand or equally great under-timing on the other. The proper thing to do here would be to wait for a somewhat overcast day, and *not* attempt to work it out by the plate by doctoring the developer and relying on "latitude of exposure."

Snow and ice subjects, like landscapes in general, are more interesting when the sun shines upon them. But this is not equivalent to saying that no beauty can be had without the sun. Any observant person will remember how beautiful the landscape is on dark winter days—so dark that the gas has to be lighted indoors—when the snow lies closely packed just ready to melt. The trees are often more heavily loaded at these times, there being no sun to melt the snow away. The sky at such times will often not be uniformly dark, but there will be shifting light patches so strong as to be a strain on the eye if looked at steadily. We have seen very effective pictures made on just such days as these.

Ice alone, such as large icicles hanging from rocks, or trees encased in ice, as happens after what are known as "freezing rains," will also be well worth the photographer's attention. Nothing can be more interesting than a fine tree with each little twig enveloped in its transparent coating, and relieving itself sharply against the sky or other suitable background.

Those whose travels with the camera take them into regions where there are snow-clad mountains and glaciers, will probably admit that such subjects are most grand and inspiring. They will notice that there are the greatest fluctuations in the light and in the sky, and that upon these two conditions will depend the distinctness and brilliancy of the photographic results as well as the effective view to the eye. All that we have said concerning the importance of proper lighting will be still more to be observed here; a view taken of some snow-covered peak with a gray, dull sky behind it would be a wretched failure; so would views of extensive fields of ice and snow in the glare of full sun-light without shadow to relieve them; so would masses of rock and trees when rising from a brilliantly lighted snow-plain if made in too strong a light, *i. e.*, one that would overdo the lights before the shadows could impress themselves. No possible modifications of developers could be expected to do that which is the special function of the light itself, and as we have already said, no doctoring of solutions and "latitude of exposure" can ever bring a first-class result out of an improperly timed plate.

We often wish that this term *latitude of exposure* had never been used in photography, for the carelessness in exact timing of the plate which comes from such a saying, is at the bottom of much of the faulty work seen now-a-days.

The combinations of snow and ice in landscape are of course as varied as landscape itself. We have often wondered, however, that those who devote themselves to the scientific rather than to the pictorial part of Photography do not attempt to take, for instance, freshly fallen snow-flakes. We have seen very good pictures of large hail-stones, and now that we can work out-doors in any temperature without fear of the films freezing, we suggest the photographing of the snow crystals as a pleasing novelty. The fresh-fallen flake might be caught on a piece of black velvet and the crystals separated with a needle, under a magnifier.

In concluding, we feel it our duty to advise all our readers who take up this work, to shield their eyes from the intense glare by means of smoke-colored eye-glasses. Accurate focusing is an impossibility when the eyes are blinded with the intense reflections from snow or ice. The focusing cloth should be always kept well tucked up under the chin to keep the light off from below. The focusing may be done with a large stop or with full aperture, and a smaller one inserted afterwards.

On Composition in Landscape.

BY JOHN BARTLETT.

The pleasure the eye derives from beholding the assemblage of objects in nature, is, in a great measure, due to perspective. It gives a variety to regular forms, while it confers regularity upon things which are themselves irregular.

Before the laws of perspective were known, we do indeed find some beautiful examples of combination of lines and forms, but more frequently glaring mistakes, all of which tends to prove that success, without a knowledge of the rules, was either a lucky chance or the result of very close copying of nature.

The photographer may imagine that there is no necessity for his understanding the laws of perspective since the lens does the work for him, but to tell the truth, the lens is not always correct. We know how some lenses, which have a very short focus, make a building of a gigantic size, which is really quite small, and high mountains sometimes like mole hills; so it is well that the photographer should understand something about perspective; but do not fear, we are not going to give it to you now, but merely to show you that it is valuable to know when your perspective is correct, that is, when the lens you have is of such good quality that it represents the objects just as they appear to an artist who is correct in his perspective.

The bad perspective produced by a too short focus lens, is more apparent in the figures which you may introduce in your scene.

You may think their position and relative size correct, but unless your eye is educated, or you have the means of verifying their dimensions, you will go on repeating your error until some kind friend convinces you of it. Figures in landscapes are great additions to it, but they had better be left out than put in improperly.

Even if you have a good long focus lens, or one of the high priced kind which is not so long focused, yet has all the virtues of the long ones, you may make your landscape look queer by the height of figures above or below the horizon line.

With the same figure at the same distance you may raise or lower the landscape in vertical height. In one case it may form a beautiful picture, in another a ridiculous one. If the horizon is too much depressed, the figure, in its relative greatness, is apt to look as if it were despising the scene, like Gulliver in Lilliput; if the horizon line is too high, we have Gulliver transported to Brobdingnag. The height of the horizon depends upon the height at which we place our tripod. We generally place the camera too high and bring the horizon up to the neck of the figure. Artists seek a lower level; they generally make their sketches seated, while photographers stand up.

The great improvement in a landscape taken with the tripod legs spread out so as to bring the camera to the artist's level, will convince any sceptic.

The position to be occupied by the figures is a matter of taste, that is, no rules can be laid down; they must be in harmony with the subject. Their size will depend upon the intentions you have of making either them or the scene itself the dominant idea in your picture.

Rustic subjects compose best in landscape: high hats and the latest styles do look a little out of place: old people and children are the most effective. If you can catch your figures in an unconscious moment, it is all the better.

Animals, especially sheep and cows add much to the beauty of landscape composition. They show admirably what might be called the anatomy of the land, the gentle slopes and elevations of the soil; and by taking positions which are most convenient for the great object of their lives, grazing, make most beautiful groupings and contribute to the unity of the picture.

By all means get cows in your rural scenes, and if possible have some standing in the brook.

Rocks, trees, mountains, meadows, streams and cows are the features of landscape, but the smile, to carry out the metaphor, is from above—we mean the sky.

In a painting, the sky is of paramount importance—a bad sky means a bad picture. We all have heard of Turner's skies, though we all may not have seen them. The photographer is too apt to neglect the sky in his view; true its intense brightness burns it out on the sensitive film, and the beautiful, light, fleecy forms we see against the clear azure often fail to show their loveliness even when taken with the most rapid shutter. Still, it is within the reach of the photographer to secure by means of sky shades, etc., many beautiful cloud subjects in connection with the landscape; at least there is no excuse for the gross neglect. We would be glad to see photographs of skies as common at our exhibitions as other subjects.

Printing in skies is more frequently resorted to, but too often they are out of joint with the scene, too obtrusive. The photographer will sometimes attach cloud masses, taken with an almost vertical sun, to a scene in which the lengthy shadows, betoken either evening or early morning. Sometimes, for variety, he will put them in upside down. In most cases they come forward too prominently, and take away whatever interest there may be in the landscape itself.

The two sides of a landscape should not balance each other; there should be a small mass and a large mass. The interest probably should be greater in the small side, but the two masses should not be divorced from one another, there must be some connecting link. For instance, suppose we had in a picture, towards the left, a mill, with trees, and a bridge leading over towards the right of the view, and suppose we call the mill and surroundings the large mass; now, the eye naturally runs along the bridge, and if it finds nothing at the terminus, it is disappointed, and strolls about hopelessly or returns dissatisfied to the mill. Let us therefore introduce a barge with its cargo, moored up to the terminus of the bridge; and we have two parts of the picture, the barge forming the little mass, in which our interest is perhaps centered. We can increase our pleasure and add greatly to the unity of the subject, by simply placing a cart and horse upon the bridge, indicating that it is conveying the cargo of the vessel to the mill.

A scene evenly lighted all over is not as beautiful as one in which the highest light is concentrated at a single point, but it is not always possible to get such subjects directly from nature. We should, however, obtain the nearest to it we can.

With the camera directed towards the light, we shall be more successful than by following the old maxim of photographers to keep the light to our back.

What glorious results are obtained at sunset, or when the sun is just off the lens, or even when it is shining right in it—from behind clouds, so it does not fog the plate.

Some of the finest effects are had by interposing the sail of a boat between the sun and the camera. The play of light upon the water and the graceful and varied forms of the vessels, together with the reflections and the strong effect of dark against light, make some of the most strikingly artistic groupings produced by photography.

One of the most difficult things about selection in a landscape, is the disposal of the number of objects which present themselves. The fewer the elements in a landscape, the easier is it managed, and we should be careful how we introduce things; there is generally enough in nature to occupy our attention.

There are three things first to be looked to before we set about the utilization of the details; our foreground, our middle distance, our extreme distance.

The first gives force to the scene, the second variety; the third, we might say poetry or sentiment.

If we leave out the foreground, the picture is weak, there is no place for the eye to start from ; it likes to dwell first on the detail of the near objects before it wanders off on its delightful excursion.

If the extreme distance is omitted, the picture has too much of a shut-in look. If it is only a little peep in between the hills of the middle ground, it will suffice.

We cannot always get this distance in photographs, but we should never neglect an opportunity. The foreground may sometimes be made more interesting by forcible introduction of some object, but it should always have the accidental look of nature.

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The Vagaries of Development.

If one were to judge from the assurance of the elementary books on photography, the conclusion would speedily be reached that development is a very simple operation.

The formulæ, whose name is legion, generally wind up with the consolation—"If the plate has been over timed, add a few drops of a ten per cent. solution of Bromide of Potassium to the developer; if underexposed, a few drops of a very dilute solution of Hyposulphite of Soda, etc."

The amateur is at once possessed with the belief that he cannot help going right. Under such a chart development looks like plain sailing, but he very soon discovers that there are snags and even shallows in the course, over which the ten per cent. or the very dilute solution will not carry his plate. The plate maker now generally comes in for a big share of the blame, and that certain emulsion is avoided.

Proper development is in reality of greater influence in determining the good qualities of a negative than correct exposure, as regards time, inasmuch as a plate properly timed may by improper development be entirely spoiled, whilst an improperly timed plate, may, by judicious management be made to approximate a well-exposed negative. No stereotyped formulæ can be laid down for successful development. Whatever good results photographers may achieve by their special methods of strong or weak development, it is unwise to think that the plan is applicable to all cases.

We truly believe in the excellent results obtained by pet formulæ, but we as truly believe that success is not attributable to the method, but to the proper adaptation of the development to the peculiar character of the subject, and the conditions under which the exposure has been made.

Photographers, after having constructed their studios and studied their light, reduce the conditions under which they work to a certain degree of uniformity. Experience teaches them that a certain procedure in development produces the most favorable results, then, forgetting the pains by which their knowledge was gained, they imagine they have discovered the only effectual method for all cases under the sun. They fail to appreciate the fact that should they move their quarters so as to change the conditions of illumination, or should the character of the subjects they are accustomed to treat vary, there would be a corresponding change in the method of development demanded to obtain equally good results.

It is of the utmost importance to know the character of the subject photographed, indeed more so than the exact time of exposure, yet how often are plates handed over to the assistant, without any data, or reserved for development till the close of the day when all knowledge of the subjects is faded from the memory. If there were no uniformity of conditions, varying but little from day to day, the results would very soon tell.

We know nothing of the wonderful action of light in so impressing the sensitive plate as to produce such a change in the molecules of the silver salt that they obey the summons of the developer, and arrange themselves in the formation of the image, but we do know that a reducing action is produced by the agency of the developer.

M. Carey Lea has investigated the action of weak and strong development upon the latent image, and has applied his discoveries to the practical purposes of the art for the production of harmonious negatives. He has shown that the soluble silver salt passes into an insoluble condition and is deposited or precipitated. The slower therefore, according to chemistry, a precipitation is, or as we would say, the weaker the developer in accelerator the more time the particles have to build up upon the parts which have been the strongest impressed by the agency of the light, whilst those portions that have been only slightly impressed, do not receive a just share of the bounty.

Now let us take a plate which has been undertimed. We know it has received in the high lights the maxmium of illumination, whilst the shadows have received the minimum. When, therefore, a weak developer is applied to the plate, the little particles have ample time to select their quarters, and therefore take hold upon the strongly impressed parts and almost entirely desert the shadows.

The result is a harsh and violent negative with excessive contrasts. There are no gradations, merely glaring high lights and dense shadows without detail. If we look through the negative, we shall find that the shadows are clear glass and the high lights very opaque.

If the same exposed plate had been treated to a strong developer, instead of the weak one, what would have been the result? A rapid deposit of the particles. They would not have had time to seek out only the richly endowed parts, but some would have found their way to the poorer quarters where the light had not been so bountiful: the shadows just like a besieging army suddenly let within the gates of a city; a great number of the soldiers would find their way to the finest quarters and the most accessible places, but in the hurly-burly, the insurging crowd would scatter and be forced in every direction, so that one would meet with soldiers at every turn.

Hence, in the undertimed plate, a

strong development is recommended.

If a strong developer were applied to an overtimed plate, the uniformity of the distribution of the particles would be such that we would have a gray flat negative. The shadows would be too much enriched at the expense of high lights. The invaders, as it were, would rush in too precipitately. Strong development, therefore, properly subordinated, gives brilliancy and contrast, weak development, properly subordinated, detail and softness.

The rapid deposition of the particles in strong development is an explanation of the phenomenon of fog from overtime. The rush of the particles is such that they have no time to respond to the summons of the impressed image—they quarter themselves anywhere and everywhere.

Now if we understand the general action of the developer we may make application of the principles. We shall find that the method to be followed in any case really depends upon the character of the subject, that is, the relative portion of illumination it receives in high lights and shadows.

Suppose we have a subject in which there is a good deal of white drapery, as, for instance, a lady in a white dress. If we apply a developer in which the accelerator, the potash or soda, or the iron is in excess, in the rapid inrush the delicate shadows will all be clogged up, but if we apply a developer in which the accelerator is controlled, the high lights will receive the allopathic dose as they should, the shadows the homeopathic. The particles will have time to select more and go where they find the best lodging, and the shadows will take what is left.

M. Carey Lea, as we have said, was the first to point out the fact that a strong developer tends to produce detail in the shadows, whilst a weak developer tends to perfect detail in the high lights.

Let us suppose we have a mass of black drapery, or those colors which photograph as black, if we should follow the stereotyped formulæ what would be the result? If we should believe, for instance, that slow development is the only proper method, we would find that the particles would have time to accumulate only on the better impressed parts, and the poorly endowed portions would receive nothing. We would have in the shadows nothing but the clear glass, showing that the humored particles had time to despise the poor quarters; but with a strong developer the want of impression is compensated by the rapidity of precipitation, and the detail in the dark shadows is brought out. The result is a modulation which is pleasing. Let us see how these principles may be called into service in portraiture.

Suppose we have a sitter whose complexion is fair but whose hair is black—or what is the same thing, flaxen; or one with florid complexion and gray or white beard or hair. Here we have violent contrast. How shall we treat it?

Remembering the principles, we would give a rather full exposure to secure an impression from the dark non-actinic portions, and then apply a rather strong developer, unrestrained, to overcome the contrast.

We say *rather* in both the exposure and development, because we recollect that strong development with overtime produces a tendency to flatness; we should not reduce the contrast so as to produce flatness. In other words do not be extreme. *It must be confessed that judgment must be used in development; there is truly no royal road to it—however much the instruction books may seek to level it.* Again our subject may be naturally flat, we mean photographically flat, that is have red or black hair and florid complexion, or white or gray hair and pale face, or black hair and a brunette or bronze complexion.

The subjects in which the complexion and hair are both non-actinic, the not very impressible subjects (again photographically speaking), will necessarily require long exposure. The light-haired and pale-faced subject will need shorter time to impress itself, if it desires to appear brilliant. Both however, will require a slow development or they will be flat stale and unprofitable, we assure you very much of the latter quality; (this is in a pecuniary sense). It remains now to show how best to accommodate great contrasts of drapery and dress with the face.

Suppose there is contrast between the hair and complexion of the sitter, black hair ann pale face, or red face and gray hair, and suppose such a subject is pleased to dress in a very actinic apparel, as for instance blue or white, how shall the photographer proceed?

In such a case we confess we would rather plead that this paper is already too long, and we have scruples against wearying the patient reader. With ordinary plates in such extreme cases good results are impossible. We would first of all try to persuade the sitter to change the garment for one less actinic in color, but if compelled to make the exposure, we would employ an orthochromatic plate and run the risk of fog.

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The Origin and Technology of Photographic Chemicals.

BY FRANK H. ROSENGARTEN.

Seventh Paper.—Sulphur and its compounds.

We have treated of the silver salts, haloids, alkalies and their simple salts in previous numbers, have spoken of the use of sulphuric acid incidentally, and now propose to traverse the more interesting sources of sulphur and its compounds. This important substance is found native chiefly in volcanic districts, either crystallized or amorphous. The Island of Sicily and the Solfarata near Naples, are the principal sources of supply; there are also large deposits in Spain, around Hecla in Iceland, in Louisiana and in various gypsum beds in Europe. The well-known mineral, iron pyrites, contains about 54 per cent. of sulphur, though generally contaminated with arsenic. Although commonly described as a mineral body, sulphur enters into the composition of certain animal and vegetable substances. Associated with nitrogen, it is a constituent of albumen, fibrin and casein; it is found in skin, hair, horn, nail and feathers, in gluten and certain essential oils, as those of mustard and horseradish. In photography it occurs in sulphuric acid, sulphite and hypo-sulphite of soda, in alum and other essential reagents. In 1881, there were 105,000 tons of sulphur imported into the United States, and doubtless the quantities have increased immensely since that time. The sort imported comes either as a yellow powder called "crude," or in "rolls," or in an impure state called "horse brimstone." To obtain these varieties, the sulphur earths are placed in earthen pots, set in oblong furnaces of brickwork. From the upper and lateral portion of these pots, a tube extends, joined to another pot outside of the furnace, perforated near the bottom, to permit the melted sulphur to flow into vessels containing water. Fire being applied to the furnaces, the sulphur rises in vapor, leaving the impurities behind, and being condensed in the cooler, flows from the perforated bottom into the vessel containing the water. This constitutes the crude sulphur of commerce, containing about one-twelfth of its weight of earthy matter. To purify this, it is melted in cast iron vessels, the impurities subside, and the purer sulphur is dipped out and poured into cylindrical wooden moulds, producing the well-known "roll" sulphur. This purification is very incomplete, and generates loss, so more complicated furnaces are employed, by use of which a very commercially pure sulphur called "sublimed" or "flowers of sulphur" is obtained.

Sulphur can be distilled from pyrites but as the expense is so great, the use of this mineral is confined to the production of oil of vitriol, which will be described later

Large quantities of sulphur of very good quality are obtained from the residues produced in the manufacture of soda in England, France, Belgium and Germany. Sulphur is a non-metallic element, susceptible of several conditions. In its ordinary state it is a brittle solid, of a pale yellow color, permanent in the air and exhibiting a crystalline texture and shining fracture. It has a slight taste and a perceptible smell when rubbed. Pure sulphur melts at 238° Fahrenheit. If heated above its melting point, it undergoes, in proportion to the heat applied, a progressive change, which will cause it to solidify at a temperature lower than that at which it melted at first, and if it be re-melted it will be found to have a higher melting point than before. Heated to 392° it has a deep brown color and is so viscid it cannot be poured from the vessel in which it is melted; heated still higher it resumes a state of fluidity and at 839° Fahr. it boils, forming a yellow vapor, readily distilled. If melted sulphur, heated above 392° Fahr., is suddenly cooled by being poured into water, it becomes a reddish brown plastic mass, with alteration of properties, and can be employed in taking impressions of medals etc. It will remain of the reddish brown color but in a few days resumes its hard state. Sulphur takes fire at about 300° and burns with a blue flame, combining with the oxygen of the air, and giving rise to sulphurous oxide. The combinations of sulphur are numerous, and are among the most powerful of chemical agents.

It has been said "that any country showing the highest type of civilization, necessarily produces oil of vitriol," and we see this exemplified in the absence of such an industry in Turkey, Greece, South America, China and those portions of the world where antique ideas prevail. Over 850,000 tons are made annually in England alone and proportionate quantities in France, Germany, Belgium and the United States. In this country Sicilian sulphur is the main source; in England nearly always, the use of pyrites prevails. The great mines of the Tharsus Mining Company in Spain have hundreds of acres of surface pyrites, very rich in copper, and the residual oxides pay for the mining and transportation by the amount of metallic copper of the purest sort they yield.

The pyrites mineral is placed in medium sized lumps on the grates of furnaces, which have previously been heated to redness, and soon begin to ignite, and once in a state of ignition, fresh charges are added and the portions burned out removed. This burning is really the oxidation of the sulphur in the pyrites into sulphurous acid by means of combination with the oxygen of the air. This acid is a volatile gas, and being forced into great lead chambers, mixed with more air, steam and fumes of nitric acid is converted into sulphuric acid.

As soon as sulphuric acid forms, it congeals to a liquid and falls in spray to the bottom of the chamber, forming what is technically called "chamber acid," as containing about 60 per cent. of sulphuric acid. This chamber acid is heated in platinum vessels and boiled until the excess of water is expelled, when it is drawn off, cooled, and becomes "oil of vitriol" of the acid of commerce. The acid made from sulphur is burned on hearths in a somewhat similar manner to the pyrites, and the vapors, driven into great leaden chambers as we have seen above, converted into "oil of vitriol". Thus made, the acid of commerce invariably contains a distinct quantity of sulphate of lead, from pyrites, arsenic and other impurities. To obtain pure acid, the oil of vitriol must be very cautiously distilled—a precarious operation, owing to the high boiling point and from danger of concussions of the boiling liquid, which is very heavy, easily breaking the glass retort, unless special precautions are taken. Sulphuric acid is a dense, colorless, inodorous liquid, of an oily appearance, and strongly corrosive. It unites with water in all proportions, but much heat is evolved on the mixture of the two fluids. At a sp. gr. of 1.78 it deposits crystals, at the freezing point of water. It acts powerfully on organic substances, developing charcoal and turning them black. A piece of cork will be quickly acted on.

In photographic work only pure sulphuric acid should be used, as the impurities found in oil of vitriol are so numerous and of such character as to cause many troubles.

In all the industries this acid has a part to play either directly or indirectly; in agriculture it shares its beneficent powers as a fertilizer, in iron working, paper making and in the preparation of textile fabrics, dyeing and innumerable other branches, it creeps in, either as an acid directly, or in combinations of the most varied characters. But how difficult it is to tell the marvelous story of this common yet most necessary reagent, in so limited a space.

The Public Ledger of Philadelphia has an entire column devoted to Photography. It is well edited and contains points of interest to professional or amateur.

Open Air Portraits.

We are told by one of the contemporary biographers of Queen Elizabeth that she desired to be painted in an "*an open garden light.*"

None of the painters of her time could paint objects as seen in the open air, and so they painted her without shadow at all, doubtless not at all to her satisfaction. Could she have lived later, Gainsborough would have delighted her; he expresses to perfection the effect of open daylight.

Out-door portraiture has many votaries amongst the amateurs, and indeed some of their results have a freshness and naturalness which ought to put to shame some professional studio work.

A glass house, really, is only a protection against the inclemency of the weather, and the amateur who aspires to portraiture need not grieve because he has only the broad expanse of heaven for his skylight.

By selecting a proper situation, and by good judgment, not only good results may be secured, but even beautiful artistic work, rich in gradations of shade.

It is necessary first of all to know when a face is well lighted. Unless one can judge from the appearance on the ground glass screen, there is no hope for him. The beautiful modulations of color in the human face mask the abrupt shadows to an inexperienced eye. One must divorce color from the object and look only for the "*values*,"—the relative tone or darkness of one part with another.

A corner where two walls come together is to be selected. Walls running northeast and northwest, respectively, are generally preferred, but it is immaterial, so we have a contrast of light and shade. There should be a dominant light coming in at any angle not less than 45°. The top light should be shut off as much as possible by means of a canopy or roof; generally enough reflection will be obtained from the top, if not too low. If any is needed, white paper or muslin may be stretched or tacked to the roof. Too much top light gives harsh, heavy shadows under the eyes.

The background may be either the wall, or, better, a frame of paper, or muslin of the suitable color, Light terra-cotta paper is cheap, and makes excellent grounds if secured of the proper width. Plain backgrounds are the most artistic; they should be placed at such an angle as to secure a nice gradation from high light to deep shadow.

The face should be directed towards the principal light. If the darker side needs lighting up, use a large screen, not too near the sitter.

Of course it is understood that the principal light is not direct sunlight.

The best time of day to take out-door portraits is in the morning or evening, when the sun is above the horizon, so as to brightly illuminate the sky, but itself hid behind high buildings. If we are fortunate enough to have yards, the out shed which is usually attached to the kitchen, closed on two sides and open on the other two, will be found a most excellent place. Supposing the sun to be in the southwest, the background-wall north, and the shadowed side east, if we place our camera at the south or southwest, nearly in the position the sun is in, we shall have the greater portion of the face in full light and the less portion in shadow, which arrangement makes the most pleasing portraits, notwithstanding studio-workers delight to light up the short side in preference to the other. As soon as the sun has sunk behind the houses, that is, as soon as it is off the background and the sitter, the photographer may begin work and continue until the light becomes too feeble.

When the conditions we have mentioned cannot be obtained, and we are forced to take portraits, truly in the open air under the broad canopy of the sky, we should try to imitate the arrangements as much as possible, that is, build up a structure. The back wall should be rather high and of a dark ground, to prevent diffuse light from entering the lens. The background, of course, can be of any color preferred. The frame work of the enclosure should be constructed in such a manner that it may be placed in a position to secure a brightly lighted side and a shadowed side. It should also be of sufficient firmness to inspire your sitter with confidence in its stability, should he feel disposed to lean his head or rest his body upon it. The direct sun should be shut off by screens of sufficient thickness to give a softness to the light, and as the face is directed towards the light, there should be some dark object, not necessarily large but of sufficient size for the eyes to rest upon, instead of being forced to stare at the direct light of the white screen. Blue and other light colored eyes require special care in this particular.

The great danger in this latter kind of out-door pictures is the entrance in the lens of bright light reflected from objects. If any enters, there is a great danger of fog. A large cone about a foot long, blacked inside, attached to the lens has been recommended. It is useful if you use a pneumatic shutter, but inconvenient if you are obliged to take the cap off and on in making your exposures.—J. B,

A Good Word for the Photograph.

"Good photographs are always instructive to the artist; the drawing is so beautifully correct in details. After turning over many, if they are well selected, it feels almost impossible to look at sketches, except by the very first masters."—TRISTRAM J. ELLIS, *Sketching from Nature.*

The Lens not Always to Blame.

We occasionally hear a good deal, especially from painters, of the evils of distortion in lenses. Often they are in the right, but sometimes the lens is right, and they are wrong.

It is not everybody that can justly boast of powers of correct observation, or who properly understands the laws of perspective, especially when applied to the human body. Feet are generally much larger in proportion to the figure than most people imagine, and we have known photographs to be criticised for the disproportion of the hands, and the poor photographer put out of heart with his high priced lens, when in reality the size was rigidly correct, with relation to the other parts of the figure. How many people will believe what is the actual size of the foot or hand of a well-proportioned person.

Short focus lenses generally come in for a Benjamin share of the condemnation; rapidity is the great desire of the amateur, the shorter the focal length, the greater the angle taken in by the plate; also, the amount of light admitted will be greater, and so the time of exposure will be greatly reduced. The cheap outfits are provided with short focus single lenses, and of course when only four or five inches, the distortion is considerable; but this is no reason why all short focus lenses should be discarded. There are compound lenses—of course expensive—with comparatively short foci, which give a picture corresponding to that of a long focus single lens. There are often great advantages to be had from the use of short focus lenses. Of course in choosing a lens the purpose for which it is required should be taken into consideration. In a portrait lens, for instance, we look for properties which would be an objection if presented by a landscape lens.

The objects to be photographed by the portrait lens, are within a few feet of the position of the camera, and the parts which are in different planes should have sharpness upon the plate without distortion. Hence we cannot use a single lens with good effect for portrait work.

In landscape, the distortion of single lenses would pass unnoticed provided there was no architectural subject delineated, but want of focus in the immediate foreground, would be detected at once.

There are certain advantages gained by using a short focus lens for landscape; more of the foreground can be included in the picture without any blurring, and the scene really looks more like an artist's sketch than a photograph with a long focus lens.

Concerning sharpness of detail a small negative has the advantage over a large plate. Even an enlargement from it, is superior in this respect to the direct negative of the same size, but the enlargement loses in the relative value of light and shade compared with the direct picture.

Reduction before Intensification.

THE method for intensifying gelatine plates by first subjecting them to a reducing process seems to be gaining in popularity. We published some time ago, September, 1887, a plan of intensification adopted by Messrs. Cassebaum & Bartlett, in which the negative is subjected to a preliminary bath of per-chloride of iron and citricacid to reduce it, before application is made of gallic acid and silver to the film. It has worked admirably. Now Mr. Dunmore, in a communication to the London Photographic Club, comes forward with a similar process of preliminary reduction before intensification, of the efficiency of which we have no doubt, but must claim priority for our publication. We give the paper in full as read by Mr. Dunmore.

On the Improvement of Over-exposed Negatives.

BY EDWARD DUNMORE.

A Communication to the London Photographic Club.

According to promise, I will now tell you of the very simple plan I have adopted for rescuing weak, over-exposed negatives from the waste—a process so simple that I hesitated to say anything about it until I had made inquiries if this or any other plan had been successfully adopted for the purpose, or if, on the contrary, the greater portion of such defective negatives were considered irremediable failures and looked upon as worthless from a printer's point of view, at any rate. The only way of getting any passable result from a thin, over-exposed plate (if it was considered worth the trouble) was by making a transparency and copying that—a roundabout process, you must admit, if the original negative can be so altered and improved as to do away with the necessity of reproduction.

The process I am about to recommend is free from difficulty, being little else than already well-known processes somewhat differently applied; it is, in fact, so simple, that one is forcibly reminded of Columbus and the egg. Negatives which by this plan can be satisfactorily treated are over-exposed ones, of which a goodly number are, no doubt, in existence, but a plate chemically fogged, or one to which the light has had access before exposure, would probably not be amenable to this treatment; however I have not made any experiments to verify the opinion. Some improvement possibly might be made, but as to making a perfect negative of such, it is extremely doubtful, whereas in the case of over-exposure it is an undoubted panacea.

If an ordinary over-exposed negative is intensified by any known method, it may be somewhat improved, but, at the same time, the deposit in the shadows will gain in strength, as well as the lights, and the result will be a very dense, slow-printing negative, and one from which perfect results are unlikely to be obtained, although somewhat better than the original before intensification. The effect of over-exposure is, we all know, to gradually obliterate the image until a point is reached when a reversal of it takes place, and the negative becomes a positive. It must be clearly understood I refer to the ordinary methods of development. In the development of a properly exposed plate, the reduction is first on the outer surface of the film, into which it gradually extends until the most reduced parts are visible at the back of the plate. If the development is continued for too long a time the portions much less acted upon by the light begin to show at the back also, and the resulting negative is too dense; this, however, depends in a measure on the thickness of the film. A proper development is one that gives sufficient density to the high lights without blocking up the shadows. The negative image in the gelatine film may be looked upon as a series of images in different strata overlying each other, the strongest lights penetrating lowest and deepest, and the deepest shadows passing scarcely beyond the surface, and sometimes not so much as appearing to affect it at all. It therefore seems that the thickest films, most rich in silver salt, should give the strongest image with ordinary development; on the contrary, with a thin, poor film it is difficult to get a good, rich printing image with clear shadows, and the chances of blurring and halation are greatly increased.

Given, then, an average good plate and over-exposure, my idea is to remove the outer layers sufficiently deep to leave clear glass in the deepest shadows, and then intensify the remainder. The way of setting about it, and which I have found answers perfectly, is the following. Other plans doubtless might be adopted to effect the same results, but as the one I tried fully answered my expectations, I thought further search unnecessary. The appliances required are few and simple, being limited to a white dish and a lamp. A solution of five grains of hyposulphite of soda to the ounce of water in one receptacle, and a solution of the same strength of ferricyanide or red prussiate of potash in another, with plenty of clean water at hand, being ready, the negative to be operated on must first be carefully examined, and some part that we know should be nearly, if not quite, clear glass specially noted, as this will form the key to the reduction. The negative is now laid face uppermost in the white dish, the lamp being arranged to throw as good a light as possible on it. The hypo and ferricyanide solutions, being mixed together, are poured over it, the dish being gently rocked, and the process of reduction, which soon sets in, intently watched, and as soon as the portions noted at the beginning as the deepest shadows permit the white of the dish to shine through, remove the negative and immediately well wash it. It is best to stop a little short of the full effect desired, for the action will continue a little after the removal from the solutions. A bit of white paper pressed against the back of the negative will aid in deciding if the reduction has been carried far enough; if not, it may be redipped until it has. Now well wash. Soak for an hour in several changes of water, and dry if on a thorough examination, the reduction has been considered right. Intensification may be proceeded with, according to Dr. Monckhoven's plan, with bichloride of mercury and cyanide of silver modified in this manner. The bichloride of mercury solution should be a cold, saturated solution at a temperature of 60°; to one ounce of this add twenty grains of bromide of potassium. Let the negative, now very ghostlike, remain in this until it is quite whitened throughout; remove and well wash, and then place it in the cyanide of silver solution, of double the usual strength, until the white image is replaced by a black one. Wash well, and the process is completed. If it is found insufficiently intensified, this process may be repeated, washing and drying between the repetitions. You will see there is nothing new in the use of either Mr. Howard Farmer's reducing or Monckhoven's intensifying plans; the novelty rests in the application of them.

There are, undoubtedly, thousands of negatives thrown aside as useless on account of over-exposure, that will afford the useful and pleasant occupation of metamorphosing into good ones during the long evenings of the coming winter—it being essentially a process suited for artificial light—and the pleasure of seeing a negative given up as hopeless bloom into one without reproach may fairly divide the honors with making transparencies for microscopes or lantern slides, which are about the only photographic operations the majority of photographers can satisfactorily pursue during the gloomy winter season.

A Simple Method of Making Instantaneous Portraits and other Photographs at Night.

BY HENRY G. PIFFARD.

READ BEFORE THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

Portraiture by artificial light resolves itself into the employment of gas, kerosene, electricity, calcium or magnesium. With an abundance of either gas or kerosene, quite satisfactory portraits may be made with an exposure of from one to three minutes, if care be taken in the arrangement of the lights, reflectors, etc. With the electric light, exposure may be very much shortened, and portraiture by this means has already been placed on a commercial basis.

The calcium light is also capable of being used for portraiture, but the apparatus employed is bulky, expensive and troublesome, and the results obtained are not sufficiently satisfactory to bring this method into use. Exposure required by the calcium light is longer than in ordinary daylight gallery work.

The intensely actinic light yielded by burning magnesium has been utilized experimentally, but not commercially, and has generally been obtained by the ignition of a small length of magnesium tape, either suspended free or fed from a specially constructed lamp. It usually requires an exposure of fifteen or twenty seconds. This method is unsatisfactory, owing to the fact that the magnesium tape is apt to break and the light go out before the exposure is completed. Powdered magnesium dropped from a funnel upon a burning lamp or other source of heat has not been found, in practice, to yield the results that were hoped for.

Quite recently Dr. H. W. Vogel has communicated the results obtained by him with the use of photographic powder prepared by Gädicke. By this means he obtained an instantaneous flash of extreme brilliancy and actinism, and capable of fully impressing the sensitive plate. In other words, he succeeded in making instantaneous portraits at night, a feat which had not been previously accomplished. The exact composition of Gädicke's powder is, we believe, unknown except to the inventor, but is supposed to be a mixture of magnesium, chlorate of potash and sulphide of antimony.

Commenting on this mixture, the *British Journal of Photography* of August 26th says: "The statement that it cannot be inflamed by pressure or percussion is difficult to believe, since most dangerous explosions have taken place with such a composition. Of course the materials must be ground separately and mixed gently, but even then, no matter how far the chlorate of potash may be diluted down, so to speak, with the other two substances, the statement that the mixture is safe against pressure and percussion is too serious, as well as too improbable, to be safely accepted on the authority of an anonymous newspaper paragraph."

The efficiency of the Gädicke light may be easily conceded, and is sufficiently attested by the eminent Dr. Vogel, and the only drawback to its use appears to be the danger of premature explosion of the powder, a danger that will be appreciated by all who are familiar with the behavior of mixtures containing chlorate of potash.

Experiment has already shown that the light given out by the burning of ten or fifteen grains of magnesium, is sufficient to fully expose a sensitive plate, and with the aid of a quick-acting portrait lens to yield a satisfactory negative so far as actinic effect is concerned.

In using magnesium tape, the ignition takes place gradually, and a time exposure is necessary. For instantaneous exposures, it is requisite that the entire quantity of magnesium be ignited simultaneously, so that the full actinism of the light is developed in an instant. This Gädicke has accomplished, but by means which appear to be somewhat hazardous.

The problem that remained, was to obtain a substance capable of instant combustion, and the heat from which would cause the simultaneous ignition of the magnesium, and which would be free from the dangers incident to the use of chlorate of potash. Such a substance is ordinary gunpowder.

If one part of gunpowder be mixed with four parts of magnesium powder and ignited in an open space, an extremely actinic light is instantly developed. This mixture is absolutely safe, as it cannot be ignited except by the application of fire, and will not explode by concussion.

Another simple method of accomplishing the same end is to take a small tuft of ordinary photographer's cotton, such as is used for making collodion, lay it on a metal plate, and strew over it a small quantity of magnesium powder. The cotton is then lighted with a match and the heat developed by its combustion ignites the magnesium, and we have an instantaneous blaze sufficiently actinic to effect the desired result, as I will presently demonstrate.

It is not for portraits only that the method here described is applicable. Excellent copies of photographs or other objects can be made, and even enlargements on bromide paper.

In practice I have found that seven or eight grains of cotton, with from ten to fifteen grains of magnesium, will produce sufficient light for a single portrait or a small group. For copying, lantern slides, or even bromide enlargements, the same quantity may be used.

The methods here described are not the only ones by which the extremely actinic light of magnesium may be safely developed, as I have made several negatives by the flash of a pistol, the weapon being loaded with a mixture of gunpowder and magnesium.

In comparison with other methods of artificial illumination adapted to portraiture, this panactinic light, if I may be permitted so to call it, is characterized by extreme softness, a feature impossible to obtain with either a single electric or calcium light, or with the magnesium tape; due to the fact that with these latter the light emanates from a comparatively small point, while the magnesium-cotton light gives a large diffused blaze.

The prints which I exhibit this evening are from negatives which have been taken simply with a view to the demonstration of the actinic power of the light, and are to be judged from this and not from an artistic stand point. It remains for the professional photographer, skilled in the use of screens, reflectors, and other accessories, and familiar with the art of posing, to obtain the best results that this means of illumination is capable of producing.

In conclusion I must extend my thanks to my friends Mr. Edward Leaming and Dr. P. M. Bradley for the kind assistance they have given me while experimenting with this process.

Pictures Received.

From Mr. Albert C. H. Krebs, of Fort Shaw, Montana, two photographs taken with a Rochester outfit; the one a landscape, the other a group of soldiers playing cards. The attitudes of the figures are well chosen and natural, and the action of the picture is good. The technical qualities are also excellent. We must congratulate Mr. Krebs on his success in securing so good results. The landscape is good photographically, but not of sufficient interest to please as a picture.

Mr. William Adcock, of Melton Mowbray, England, who so kindly furnished the charming study for our September number, has sent us another of his artistic pictures, a small one, entitled "Two's company, Three's none." Nothing can be more natural or tell the story with more grace. Indeed, all the work of Mr. Adcock which it has been our privilege to see, looks more like copies from paintings than actual poses from life. There is such freedom and simplicity in his work that he must either possess delightful models or have the tact to mould them to his purpose: we are inclined to the latter opinion, since all his pictures have this charm, and we know that models are not of the most plastic material.

Mr. John Carbutt has favored us with a number of photographs, taken with the Magnesium and Gun-cotton Illumination. Mr. Carbutt is very successful in this new departure. His pictures, which represent groups in varied occupations, are excellent photographs, and the illumination is fine. One picture especially pleased us; it represented a number of children, some of a large growth, engaged in an All Hallow E'en project frolic. The expression on some of the figures is very amusing. All the pictures were taken upon Mr. Carbutt's excellent plates, and as the exposures were necessarily very short, the fine detail and strength of the photographs attest the plates' great rapidity and good qualities.

Mr. William H. Rau sends us a number of beautiful lantern slides of scenes of the recent Constitutional Centennial Celebration, and of the North Atlantic Squadron anchored in the Delaware river. It is impossible to desire anything more beautiful than the quality of these transparencies. There is a richness about them and a beauty of tone not surpassed even by the celebrated French slides of Levy and Laschenel. They are upon wet collodion plates and toned by a special process. We are glad to learn that Mr. Rau has been obliged to move to more commodious quarters, to accommodate his increased trade. His present location is 1324 Chestnut street, corner of Juniper street, where he is fitted up with all the requirements for producing the excellent work, examples of which he has had the kindness to send us. The list of slides we find enumerated in his catalogue embraces 5,000 subjects from all parts of the world.

The Eastman Dry Plate and Film Co., of Rochester, N. Y., sends us, by Mr. Bellsmith, a little pamphlet describing the latest improvements made by the company in film photography. Judging by the excellent sample, films have reached perfection. The "American Film" consists of a film of *insoluble* sensitive gelatine emulsion attached to a paper support by means of a layer of *soluble* plain gelatine. The paper serves as a temporary support during the operations of exposure, developing, fixing and washing. After which it is laid down on a prepared sheet of glass, the paper removed by warm water which dissolves the soluble gelatine layer and leaves the film on the glass, the paper is then replaced by a "skin" of gelatine and the whole stripped from the glass ready for printing. This process gives a clear, transparent, flexible negative, of superior printing quality, having all the advantages of glass, and neither its weight nor its fragility. A film negative is about one-twentieth the weight of an ordinary glass negative of the same size. The company has made great improvements in the Roll Holder, by which it is reduced in weight and size, in the number of parts, and what is also very important, in price. A sample Film Negative will be sent, postage paid, to any address in the U. S., on receipt of two 2-cent stamp. We assure you it is a little gem.

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The desire of some of the members of the P. A. of A. to change the next place of meeting from Minneapolis to some other place nearer East, has not caused much stir in the pohtographic camp. It does not seem any more popular than the biennial proposition.

OCTOBER BARGAIN LIST.

Accessories:

1—8x10 Interior Ground, good condition,	10 00
1—8x10 Exterior Ground, good condition,	10 00
1—Air brush, good condition,	35 00
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1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
—Spencer Head-rest	11 00
1—Pharaoh Position Chair	16 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, light right	15 00
British Journal Almanacs for 1878	20
Photo Mosaics for 1883,	20
1—No. 72 Osborne bridge good as new,	8 00
1—8x10 Plain ground	4 50
1—Bryant rustic gate	4 00
1—Seavey balustrade	14 00
1—Queen Anne baby lounge	8 50
1—Rustic corner chair	5 00
1—8x10 Perfect camera stand	6 00
1—Knickerbocker stand, with 14x17 top	12 00
1—8x10 Osborne's interior background, new, light left	20 00
1—8x10 Hough exterior ground	16 00
1—4x8 Osborne's side slip	7 50
5x8 orange glass developing trays	35
Wood drop shutters	1 50
Negative boxes, odd sizes, each	20
1—Adjustable arm Position Chair	12 00
1—Position Chair, rising back	8 50
1—6-inch Burnisher	4 00
4¼x5¼ Beveled Edge Cards, per dozen	10
12—5x8 Flat Printing Frames, in good condition, each	45
10—8x10 Flat Printing Frames, good condition, each	57
1—14 in. Eureka Burnisher	20 00
1—Osborne stile, new	4 50
1—4oz. Porcelain mortar and pestle	35
1—6 in. Porcelain mortar and pestle	50
2—4x5 Japan trays and plate lifter, lot	20
Pearl leads, the best retouching point in the market, each	15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each	1 35

Camera Boxes:

1—5x8 Blair outfit, good as new,	10 00
2—5x8 Rochesher, new model outfit,	8 00
1—11x14 Blair reversible back, extension front view, box and and 3 holders,	40 00
1—No. 48 B, 8x10 Portrait box, double swing and Benster holder,	25 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder	6 00
1—Half-size Ferrotype box, with four 1-9 size tubes	15 00
1—4x5 '76 outfit	15 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new	44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new	46 00
1—½ size Portrait Camera	5 00

Lenses:

1—14x17 Harrison Wide Angle View,	18 00
1—4x4 Tench Portrait Lens. This was made by Dallmeyer's foreman and is the same combination as his No. 3, A list, $224.00, will sell for	90 00
1—¼ size Darlot Gem Lens	3 00
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1—Matched pair German Stereoscopic Lenses, in good order	15 00
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1—5x8 Dallmeyer View Lens	15 00
1—Woodward Condensing Lens.	10 00
1—4x4 Darlot Globe Lens	25 00
1—4x4 " " "	20 00
1—5x8 Abendroth wide angle view lens	18 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—½ size C. C. Harrison portrait lens	5 00
1—¼ size portrait lens	3 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	40 00
1—4x4 Voigtlander Portrait Lens.	20 00
1—Extra 4x4 Chapman Portrait Lens	20 00
1—8x10 E. A. View Lens	5 00
1—5x8 Darlot View Lens	2 00
1—4x5 Harrison & Schnitzer View Lens	2 00
1—Ross View Lens	5 00
1—H. Fitz Double View Lens, revolving stops	8 00
1—5x8 R. O. Co. Lens, good as new	3 00
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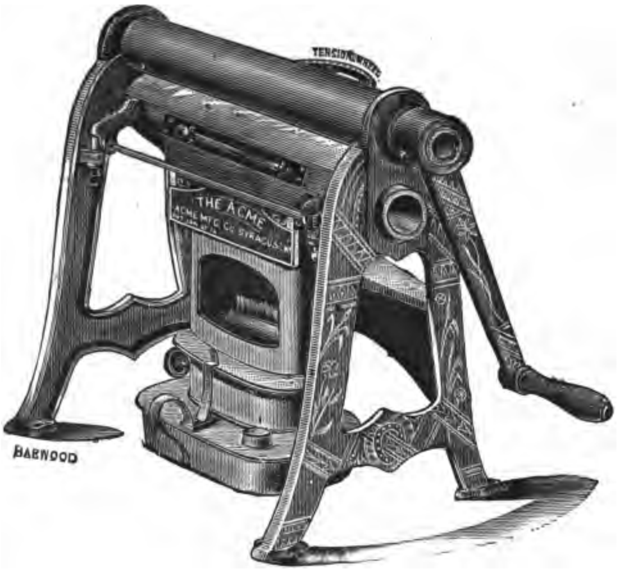

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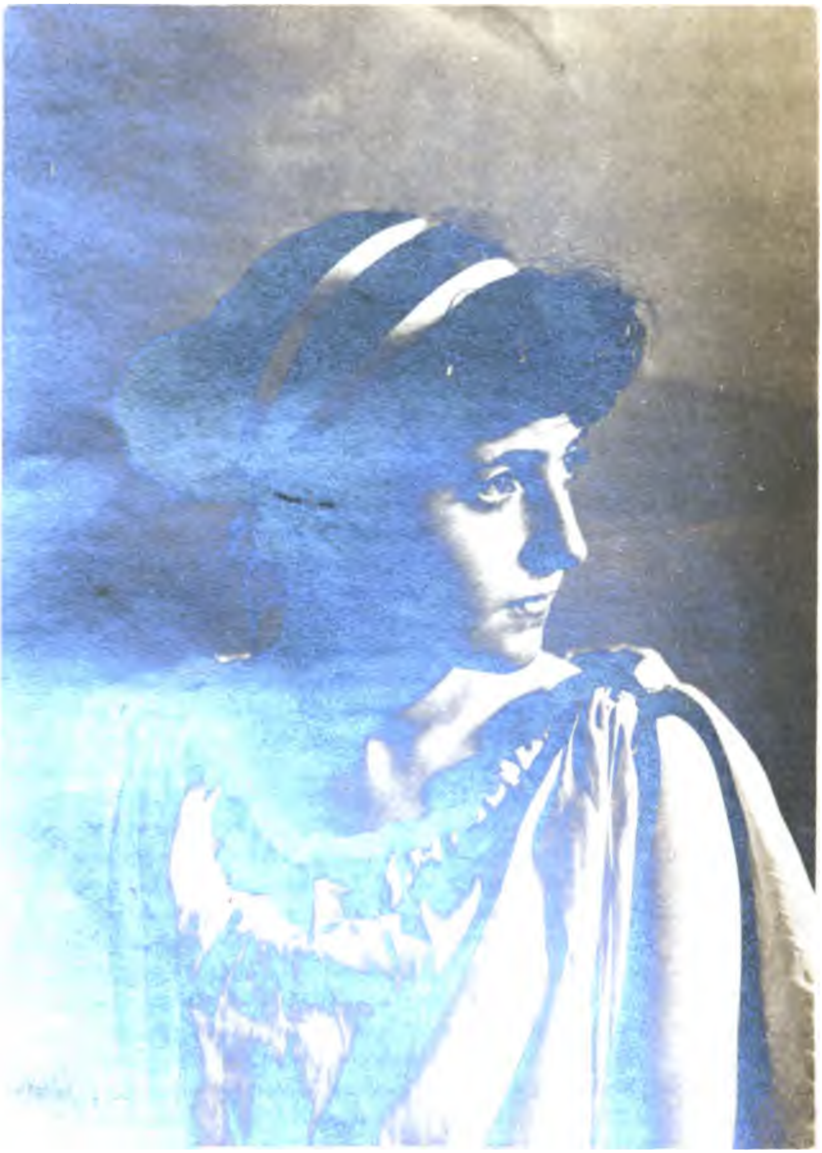

INSTANTANEOUS PHOTOGRAPH AT NIGHT.

TAKEN WITH McCOLLIN'S BLITZ-PULVER. ON EASTMAN'S PERMANENT BROMIDE PAPER.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, DECEMBER, 1887. NO. 12

AMERICAN
JOURNAL OF PHOTOGRAPHY,
PUBLISHED MONTHLY.
$1.00 per Annum, in Advance.

The Improved Instantaneous Flash Light.

THE beautiful pictures that we have the pleasure of presenting to our readers with this issue of the journal, are a speaking proof of what the new instantaneous flash light can accomplish when properly handled.

The pictures may be accepted as the result of lengthy study undertaken mainly with the object in view of rendering the inflammable compound at once as safe to handle as possible, as small in bulk, and of as reasonable a price.

Could our readers have been present on the evening when the negatives were made, they would have unanimously agreed that each of the above desiderata had been fulfilled.

Without any wish to make this a didactic article upon Photography at Night, we may give the following points in the working of the light, premising, however, that the good effect of the picture will largely depend upon the artistic capabilities of the photographer himself. That Mr. Cassebaum, who made the negatives, succeeded well in the present instance, we need hardly say.

The sitter was posed at a reasonable distance in front of an ordinary neutral-tinted studio background, and had a blonde complexion with considerable color and light hair. The costume was pure white in the first instance, and afterwards of red and blue satin. The flashing-powder was placed on a metallic saucer standing just in front of a *horizontal* gas-burner, which was fed by a rubber tube carrying a compressing-cock. When the latter was squeezed between the thumb and finger the pressure on the tube was removed, and a tongue of flame leaped to the powder on the saucer igniting it instantaneously. A very small amount of the powder was sufficient; we used an ordinary child's thimble as a measure, holding, say, somewhere from nine to eleven grains of the compound, which, let us say here, *contains no gun cotton.*

The light was from six to eight feet distant from the sitter, and but very little smoke could be detected after more than a dozen exposures, no windows having been opened in the meantime. The lens was an 11-inch back focus, 3 B. Dallmeyer, with 1⅞ inch stop. Just before the signal "ready" was given, an assistant interposed a sheet of ground glass close to the saucer containing the powder. This softened the principal light considerably, allowing the white reflector (which was drawn up close to the sitter) to do its work well in illuminating the shadows. Tinfoiled sheets of card were also tried, but plain white seemed to work better.

There was one tinfoil sheet behind the light.

The focussing was easily done by havan assistant hold a lamp near the sitter's head and the train of her dress. The development was thought to be, if anything, rather quicker than on daylight exposed plates. The plates were Cramer's Lightning, No. 35.

None of the six persons present complained of the effect of the bright light on their eyes.

On Development.

WILLIAM H. RAU.

Although much has recently been said concerning various methods of development, there has been really no serious discussion of the respective merits of the slow or rapid method. The experience of myself, as well as of many of the best and most successful workers, has demonstrated that generally the best results are obtained by slow and gradual development, with a solution proportioned properly in Pyro and Alkali, yet weak, and sometimes (when exposure is full) well restrained. The same holds good with wet or dry plates.

Some of the best work, both large and small, which I have seen on wet plates, was made by giving a full exposure in the camera, and using an iron developer weak and well restrained with both acetic acid and gelatine.

The image was developed until all the detail was out, when citric acid and silver with a weak iron was rinsed over the plate until the proper density was obtained; this gave negatives full of detail and without the chalky effect so often seen in old wet plate work. I think the same methods are applicable to dry plate work. All the negatives I made in the Orient were given full exposures and a weak oxalate developer used, so that the development was slow and even; the dishes were rocked gently, as a violent motion *does* tend to hardness, which some miscall brilliancy; just enough motion is necessary to let fresh action on the surface of the plate take place. Take the Taupenaut process—in this the development is very slow with an Alkali Pyro, all detail showing first, after which an acid Pyro developer is put on, which in a little more rapid way builds up the image, giving (as any one who has seen a plate by this process will testify) a very fine grain; of course the albumen used in this process gives quality. In the Emulsion processes the development must be slow to give soft and even negatives. In using wet plates for negatives or transparencies, honey and sugar used in the developer retards and allows a very fine grain deposit. At one time the so-called Berlin Heads were made by using a thin collodion giving a full exposure, a weak, well-restrained developer, and building up the image with acid Pyro intensifier before fixing. My experience with outdoor work is very much in favor of slow plates, full time and a developer well restrained and weak, and if resulting image is too thin, intensification with the Gallic Acid and Silver, which is gradual and slow and gives a negative all that can be desired. Why are all lantern slide plates made slow and developed with a solution much weaker than is used for negatives? Because a finer grain and better gradation of light and shade and freedom from snowiness is necessary. Supposing a rapid plate is used, any one having experience will have noticed that unless the exposure has been short, a fresh developer does not give as good a negative as it will on second application; I would suggest about as follows: supposing either potash or soda is used, if six ounces is the amount of solution necessary, mix two or three ounces of developer and dilute with water to six and go slowly; it may be tedious, but the resulting negatives will well repay for the time consumed in their production. I have recently seen a number of full-timed but under-devoloped plates, which were thin and full of detail but deficient in density (having been developed with an old solution, and not long enough), brought up to a rich wet-plate appearance by the use of the Gallic Acid and Silver developer, such as published by Messrs. Cassebaum & Bartlett. I think of this intensifier that the quality is obtained by its gradual and slow action, giving such a fine deposit of silver that cannot be equalledwith mercury. In marine views in which there are boats and ships or other objects which are in violent contrast with the water and sky, the weak developer will especially give a good negative. I have seen many a fine marine spoiled by the use of a strong, fresh developer.

In making Bromide enlargements or contact prints, a weak, fresh developer on a full-timed print will give more detail in the middle tints and shadows, and also the required black tone.

The Short-comings of Photography in Relation to Art.

READ BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA BY JOHN BARTLETT.

THE ideal, not the literal rendering of nature is generally accounted the peculiar function of art; but, the truth is, the ideal of the greatest painters and sculptors is not far removed from the matter-of-fact.

The superb horses of the Elgin marbles are almost fac-similes of beautiful living specimens.

Doubtless the gods and heroes approximated human forms, inasmuch as the Greeks had ample opportunity for comparison, denied us by the exigencies of modern life, which compel us to keep our shapes of beauty swathed in thick garments.

The true ideal is not something removed from nature, but the expression of the taste in selection and combination of familiar things, and the closer the artist clings to objective realities the greater is his work accounted.

Now, it is sometimes claimed for photography, by its over-zealous champions, that its intense realism in the translation of the external world is a strong argument in favor of its art status.

To be consistent with the definition of idealism, one might be willing to admit that a subject happily selected by the camera directly from nature would entitle the photographer to the credit due to invention, inasmuch as the mere faculty of inventing a subject does not demand so quick and keen a perception of the beautiful, as the discovery in nature of what is just suited to the purposes of art, which escapes the observation of ordinary people.

But one cannot consistently affirm that the pencil of light does faithfully translate nature upon the sensitive film; that is, nature as presented to our normal vision.

If we lay aside the grave charges, hitherto brought against photography, of falsifying nature, in the incorrect rendering of color into monochrome, a fault which the orthochromatic processes are fast correcting; still we shall have to admit that in the disposition of light and shade, there is a difference between the photograph and the painting—a difference which justifies the painter's method rather than the photographer's.

Let us examine a painting and a photograph of the same subject, a high tower or steeple, against a clear, bright sky.

In the photograph we shall see that the

upper part of the tower or steeple is in much stronger light than the bottom, whilst in the painting or engraving, the higher part is darker than the lower.

Now, which is correct? Does it not stand to reason, that a high tower against a cloudless sky receives greater illumination at the top in the broad expanse of light, just as the photograph renders it, than at the bottom?

Does the painter then violate nature to create artistic effect? Surely his method is the more pleasing and picturesque, but how can it be contrary to nature and yet true and beautiful.

One cannot conceive how any such glaring violation of nature can result in artistic pleasure, how a method seemingly so opposed to common sense, and apparently so out of harmony with the actual order of things can be justified; and yet, justice must give the verdict for the painter.

Art must represent nature as it is presented to our senses, not as things actually are.

But, why does the high tower against a cloudless sky show the upper part dark, to our vision. We must have recourse to a physiological reason for an explanation.

There is a peculiarity of the retina which shows itself when we exercise the eye, and which has its influence in works of art. If we place a bright silver coin upon a dark table and center the eye upon it for a few minutes, when we remove the coin for an instant, there is a white spot in its place, which almost immediately becomes black.

If a red wafer placed upon a sheet of paper, is looked at intently, on removing the wafer the spot will appear green. If we look upon a yellow wafer, on removal it will seem blue, the complementary color always showing itself. This phenomenon is explained by supposing the nerve to be so exhausted by the continued action of the special rays, that it momentarily becomes insensible to their influence, and the effect of the rays of an opposite kind only is transmitted to the brain. Let us see now how this sensibility produces an effect where there is strictly speaking no color, but only light and shade, as in the case of our tower against the sky. We know the highest part of the tower is in the brighest illumination, yet we do not actually so see it. It never so appears to our eye. The reason is obvious; when we look at the steeple or tower, a great part of the retina is opposed to the light of the sky, and on shifting the eye to any particular part, the light which is reflected from that part falls upon the retina where it has been exhausted by the direct light from the sky, and consequently that part appears dark.

A very simple way of convincing oneself of this peculiarity of the retina, is to look intently for a minute at an open window in a room, and then direct your eyes to the wall: the panes will look dark, while the mullions look light.

Painters take advantage of this peculiarity of the eye. They create an effect not only by the contrasts of lights and shades but also by contrasts of colors. The bright carnations for instance, which in themselves would be glaringly offensive, even painful to the eye, are softened down from their exaggeration by some contiguous colors which catch the eye, affect the retina, let us say tire it first, so that the two impressions together produce a harmonious effect, which seems natural although it actually is not so. If the coloring of a picture be too warm, with subtlety of art the painter introduces some color, which, rendering the eye insensible to the red and yellow rays, increases the susceptibility to the blue and violet rays. Every ray of the warm red is actually transmitted to the retina, but the impression is modified by the colder colors. A portion of the red is for a moment lost, and the picture appears less warm because the opposite rays have prevailing influence. We never really see all the colors in their actual degree of intensity at the same time when placed together. The eye alternately shifts from one to the other, and there is a modification of all. This is the harmony the painter strives after. It is art, and it is at the same time truth to nature. When we look at a beautiful landscape we do not actually see the colors as they are transmitted by vibrations to the nerve of the eye. No one who desires to enjoy a lovely prospect ever fixes his eye intently upon any individual portion of a scene to the exclusion of all the rest, but the eye wanders over the beautiful prospect and returns as from a delightful excursion. It receives a multitude of varied and modified impressions, and the result is a pleasing picture, just such as the painter depicts upon the canvas, only infinitely more beautiful.

If any argument were needed for the beneficence of the Creator, this physiological peculiarity, this optical imperfection might be cited in evidence rather than the eye's perfection as an optical instrument as advanced by the school of Paley. For on it depends our æsthetic pleasure in landscape.

For rendering of form the human eye, guided by the most delicate touch, cannot approach the pencil of light, yet from the tribunal of art judgment must often be pronounced against photography, and the book of the law is again the limitation of our vision.

Instantaneous photography has yielded marvellous results to science. For the mathematician it has verified the direction of the curve of projectiles. To the physiologist it has revealed the curious muscular contortions assumed during animal locomotion; but instantaneousness is generally destructive of art.

Painters do not paint animals in motion in the attitudes Mr. Muybridge has demonstrated to be the actual truth. The painter prefers reality as it presents itself to our visual sense to reality as it is. The law of the persistence of vision must not be violated.

It has been clearly demonstrated that the image impressed upon the retina remains there an appreciable space of time, consequently objects though passing continuously through an unbroken series, seem to the eye to remain unchanged. Instantaneous photography by isolating any special movement in the series really destroys the whole idea of motion.

To compel the artist to represent arrested movement, an actual momentary attitude, because he has to do with a single moment of time in his representation, would be about as wise as to force him to confine himself to the use of those colors only which do not harmoniously modify each other when in juxtaposition, though science can readily prove the isolated existence of the three primary colors in their integrity.

Lessing in his critical essay the Laocoon tells us:

"All appearances of nature which in their actual state are but of an instant's duration, which can be what they are but for a moment, all such appearances, be they pleasing or be they horrible, receive through the prolonged existence which art gives them, a character so contrary to nature that at every repeated view we take of them the impression becomes weaker and weaker, till at last we turn from the contemplation in weariness and disgust.

" La Mettrie, who had himself painted and engraved as Democritus, the laughing philosopher, laughs only at the first time we look at him. Look at him often, and the philosopher is converted into a buffoon and his laugh into a grimace."

This is the impression conveyed by many an instantaneous photograph, because it represents the person, as it were, petrified in the transient state, fixed forever in a position which could not be preserved for more than a single moment. By its scrupulous adherence to reality it takes away the very appearance of reality, motion, life, action.

The greatest painters have devoted their attention to this simulation of motion in their pictures. Rubens was preemenently successful in giving action to his figures.

Fuseli describes the elements of his pictures as "swept along in a gulf of colors, as herbage, trees, and shrubs are whirled, tossed, and absorbed by an inundation." There is a picture of his representing a rustic wedding, filled with figures, dancing, romping, and rolling on the ground; a wonderful display of varied attitudes which creates in the beholder the idea of motion in a masterly manner.

Constantin in his "*Idees Italiennes*" has remarked that "the rapidity and suddenness of movement on the part of the mother of the demoniac boy, in Raphael's great picture of the Transfiguration, is such that the draperies have not had time to follow the impulse of her body. She alone has turned... Her girdle, left behind by her movement, seems to be placed awry, but we soon perceive that if she were to return to her former attitude it would be in its proper place.

Raphael always leaves around his figures the space necessary to indicate the position in which they were at the moment immediately preceeding that chosen for the painting, and is very careful not to fill up the void which they have thus left behind them."

It is thus that Raphael succeeds in giving a spontaneity of movement to his figures which is truly marvelous.

Instances may likewise be selected from the work of Titian, in which the expression of motion and animation is masterly portrayed. In a small picture representing Christ appearing to Mary in the garden, the Magdalene seems fairly to run forward to meet the Lord, her streaming hair and drapery denoting the utmost rapidity of her action, while the hand stretched forth to touch him is suddenly checked at his words "touch me not."

I have never had the privilege of seeing the originals of the great masters, but even in the engravings and photographs which are accessible, the indescribable charm of motion is not lost.

Michael Angelo is rich in illustration of the power of conveying the idea of motion by suggestion, but we have cited enough examples. Even amongst the minor painters we often find the previous position of the figure indicated by the manner in which the apparel is disposed upon the ground or upon some near object, as a chair. We believe the photographer would do well to imitate the painter, if he desires to convey the idea of motion, rather than to seek for action in transient attitude alone. A transient attitude may indeed be depicted but not isolated. There must be other objects associated to carry the mind from one phase to the other, so that it weary not of the perpetual sameness.

How insupportable do those statues of heroes become, upon their solitary pedestals, with arms extended, forever holding the uplifted sword. Yet place the same figure in the same attitude in a painting, marching at the head of a victorious host, with streaming banners, and the mind has something to turn to for relief, and the impression is strong and full of enjoyment.

With what delight have we watched the wonderful play of sun-light upon the waves of the ocean, and how grieved, because our cameras gave so tame a rendering of their beauty.

What has the sensitive film, with its quick perception, done with those peculiar elongated streaks of ever-shifting light, which excite the rapture of the painter, which not only interpret the form of the large masses of water, but also the shape of the tiny waves sculptured upon their surface.

The instantaneous photograph reveals the truth, but the vision of beauty has vanished. "Truth is not beauty" here. In the photograph, in place of the lines of light presented to our vision, we have but rounded dots of the reflected image of the sun, which become elongated by the motion of the waves and are so impressed upon the vision.

Waves breaking upon the beach, for similar reasons, appear different to our eyes from instantaneous photographs of the same. The impression we receive is not of any single wave movement, but the resultant of the rapid presentation of several movements in succession.

The opacity of instantaneous pictures of waterfalls, and the transparency of real ones, is no doubt due to the same physiological cause, the infirmity of our vision.

COMPOSITE PHOTOGRAPHY.

BY ELLERSLIE WALLACE.

READ BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA, DEC. 8th, 1887.

Fronti nulla fides.

Out of the mixed mass of matter that modern photography presents to us, there are some things that would be better suppressed altogether. It is a matter for great regret that considerable numbers of those practising our beautiful art do not scruple to lower it to absolute quackery, sometimes to revolting indecency, often to the multiplication of "cheap and nasty" forms of design, and still oftener to silly pastime or childish absurdity.

With many persons, indeed, the idea seems to be to pursue photography in any and all ways rather than the legitimate ones that have rendered it so useful to the world and so universally and justly admired.

I do not propose to enter at any length into a subject like this, which must have forced itself upon the attention of every thinking man who has any interest in the camera, but there is one of these absurd quackeries that seems to be commanding the serious attention of people of education and attainments and who really ought to know better. I allude to the so-called Composite Photography. Now, it is well to have the desire of hearing new things and seeing new inventions, but when I see such nonsense as Composite Photography gravely treated in a scientific manner by respectable magazines that are read by the general public, and even by the journals devoted to our own craft, I can only say it makes me feel very sorry.

Composite Photography claims to give a normal type or average of the features of a number of individuals; and the assertion that each exposure on each subject partially destroys and partially adds to the image previously existing on the film, is just one of those nicely contrived bits of scientific speciousness that can easily hoodwink any one not understanding the technical part of photography.

If a draughtsman draws on a rough-cast wall with a chunk of dry color, or on the smoothest of paper with the finest pointed pen, he makes an outline in either case, because he attempts the representation of *one object in one place.* Composite Photography attempts the representation of an unlimited number of objects *in one place.*

For the same reason we can not compare the "composite" with a badly focussed plate, because the latter has an outline no matter if the image be hardly discernible. The form is there just as it is in the drawing on the rough-cast wall.

A "composite" photograph can not claim to be a picture in any sense, because it is merely a jumble of uncombined outlines. The expression "uncombined" is a foolish one perhaps, for two outlines can not be combined upon the same surface or film. Let us take an example from the steroscope: here we have two images the same in size to a hair's breadth, just as the images of any object are when formed upon the retinæ of the two eyes. The only difference between them is that the one taken with the right-hand lens gives a rather more right-hand view of the subject, and *vice versa*. How are they made to combine? By means of an ingenious and beautiful optical trick which diverts the lines of vision from their normal course; the prismoid lenses of the stereoscope acting in the one case, and the simultaneous outward rotation of both eye-balls (binocular vision) in the other, when no stereoscope is used. But suppose we cut a stereo slide in two, set each half in a magic lantern, and project the images on a screen. We may make them overlap, but have we combined them to a perfect whole? No. So, in the stereoscope, the images are but *apparently* combined, and the very beauty of the quasi-solid picture lies in its unreality.

I take it that any picture to be a picture must have an outline. A "composite" of ten sitters made with ten exposures, no matter how carefully graded, would have ten outlines. Is it therefore ten times a picture? It certainly is not ten pictures. We have ten outlines, each striving for the dominant position, but we know that two outlines can no more occupy the same place than two bodies can occupy the same space at the same time.

Let us suppose that twenty of us here to-night were walking on a beach by the sea, and that we determined to make a "composite" foot-print in the wet sand. The form of each man's foot would then be impressed over the preceding one, and the result would be, a lot of tramped down sand, nothing more. This comparison with Composite Photography is a perfectly just one.

Again, suppose the twenty of us were to commission one of the number to go to some sculptor or moulder in clay and request him to make a "composite" statue of the whole twenty, with or without twenty outlines. I should rather expect him to be answered as the old gentleman was who desired the London judge to recover his stolen property for him "Sir, does your mother know you're out?" This comparison, also, is a perfectly just one.

I have recently seen a "type-composite" of some seventy lady graduates of a well-known college. While I am hardly in a position to judge of the intellectual average thus shown, I can say that a phrenologist would look in vain for the bump of photographic-common-sensitiveness or chemico-physical-comprehensiveness.

If I am entirely wrong in this matter, however, and if such a thing as Composite Photography really exists, I shall always regret that I did not attempt some "composites" of European scenery when abroad with my camera a few years ago. "What is sauce for the goose is sauce for the gander," and if it is possible to make a "composite" of eighty different people, it is also possible to make a "composite" of eighty different out-door views. I think that a "composite" of English cathedrals, Dutch windmills, French and German 'timbered houses, Belgian hotels-de-ville, Swiss mountain scenery, and street views pretty much everywhere, all combined on the same plate, would have been a new departure in Landscape Photography, and together with the portrait "composites" might well bear the title

"Confusion now hath made his masterpiece."

The Origin and Technology of Phographic Chemicals.

BY FRANK H. ROSENGARTEN.

Eighth paper.—Sulphur Compounds continued.

In our last number we discussed sulphur, but, naturally in so small a space, very briefly. It combines with oxygen in many proportions, forming a great series of compounds with most varying properties, chemical and physical. Thus we have them in equivalents of

	Sulphur.	Oxygen.
Hyposulphurous acid	2	2
Trisulpho-hyposulphuric acid	5	5
Bisulpho-hyposulphuric acid	4	5
Monosulpho-hyposulphuric acid	3	5
Sulphurous acid	1	2
Hyposulphuric acid	2	5
Sulphuric acid	1	3

We have described sulphuric acid, and now propose to treat of the sulphites and hyposulphites, the great necessaries in photography. Sulphite of soda is the compound of soda with sulphurous acid. Sulphurous acid is a colorless gas, having a smell resembling that of burning sulphur, acting acutely on the respiratory organs, though not dangerous when breathed in small quantities. It liquefies at about 14° Fahr., though rarely found in that state except experimentally, and possibly in containers under pressure of several atmospheres, used for artificial ice production. It has a small capacity for latent heat, while the gaseous acid is one of the best absorbers, hence its practical application to ice making has been largely availed of, by permitting the liquid, under great pressure, to expand in coils of pipes surrounded by salt water, in which cans of pure water are immersed. The intense cold thus produced soon freezes the pure water, though not economically, as the gas readily absorbs another equivalent of oxygen, is converted into sulphuric acid, and the metal containers are soon destroyed. It can be made by mixing six parts of peroxide of manganese with one part of sulphur. Heated in a retort the gas goes off, is washed to remove impurities, and collected under water. It is also made by decomposing sulphuric acid by a metal which removes a portion of its oxygen, but which does not decompose water when in contact with active acids. Such metals as mercury or copper are used for this purpose. Iron or zinc treated in this way would yield hydrogen as well as some sulphurous acid. As the gas is very soluble in water it can be trapped, and if saturated with soda gives crystals of sulphite of soda, on evaporation.

Sulphurous acid cannot be decomposed by heat alone, and is formed by the combination of sulphur at very high temperatures. The solution of the gas when exposed to the air absorbs oxygen, and is altered into sulphuric acid, hence its preservation in solution is difficult. Water dissolves about fifty volumes of it, which heat expels entirely, if the solution is boiled a few moments. It is a weak acid, its combinations with the bases being easily decomposed by acids, though expelling carbonic acid from carbonates. The majority of organic coloring matters are changed or discolored by sulphurous acid, sometimes bleaching them and thus becoming useful in silk and woolen industries. Sulphite of soda reduces the oxides of mercury, silver and gold to the metallic state, and the oxides of copper, iron, lead, and manganese to lower oxides. It is in the form of white prismatic crystals, soluble in four parts of cold water and less than its own weight of boiling water. Sulphuric acid added to it gives rise to the strong odor of burning sulphur by the strong reaction occurring. It consists of one equivalent of soda and one of sulphurous acid and three of water, and should be kept in well-stopped bottles, as by prolonged exposure it is converted into sulphate. The bisulphite of soda is not adapted for photographic work, and therefore need not be described. But space is limited, and we must hurry along and try to invade the realms of hypo, that much abused, but most invaluable of our reagents. Hyposulphite of soda is a compound of hyposulphurous acid and soda. But this acid exists only in combination, and doubtless has never been seen isolated from a base. As the salt of soda is so familiar to all of us in appearance, but few words will describe it as having a mild saline, sulphurous taste, being freely soluble in water, insoluble in alcohol. Its solution dissolves bromide and chloride of silver and all other insoluble compounds of that metal, except the sulphuret, and that salt (and who knows what it is!) resulting from the decomposition of silver salts by light. M. Carey Lea found that an alkaline ammoniacal salt of ruthenium, boiled with hyposulphite, gradually becomes rose colored, ultimately rich carmine color, in strong solution almost black, and then if diluted changing to a magnificent red, far excelling the aniline red colors.

Hypo is readily produced by mixing carbonate of soda, dried, in fine powder with sulphur, heating gradually until the sulphur melts, and stirring the waxy mass, always keeping it hot, that a complete exposure to air may be perfected. Sulphuret of sodium is formed and then gradually the sulphite. When the decomposition is complete, the sulphite is dissolved in water, filtered and boiled with sulphur, is converted into hyposulphite of soda, when by concentration, filtration, and evaporation of the resultant solution, crystals may be obtained, having combined with more sulphur to form the compound of soda with two equivalents of sulphur and two of oxygen. These crystals are prisms, containing five molecules of water (41.7 per cent.) of crystallization. This quantity is inherent to the salt and chemically combined and is therefore not an adulteration. When the crystals are exposed to heat, they undergo aqueous fusion, and then dry up to a white mass, decomposing then with the evolution of sulphurous acid and sulphur, which takes fire, and in burning away leaving a residue of neutral sulphate of soda and a trace of sulphide. The hyposulphite forms a white precipitate with chloride of barium in concentrated solutions, but on sufficient dilution redissolves, showing thus the absence of sulphate of soda. When dropped into a solution of nitrate of silver a white precipitate is formed, which soon turns yellow and finally black. If however the silver salt is dropped into an excess of the hyposulphite of soda, the precipitate formed is redissolved on agitation and remains clear as long as the excess of hypo exists. The ordinary impurities are sulphate and carbonate of sodium, but these are not harmful in photographic work unless present in very large excess. Like so many of the chemical products we have had before, hypo is a boon to the great manufacturers of soda salts, who are bothered with sulphur compounds, and by means of critical chemical investigation utilize what to them is a great nuisance, to produce our much prized hypo. Surely the chemists should be looked upon as the great promoters of wealth in utilizing the cast-off and despised things of this world to reproduce the myriads of wonderful reagents and salts that are invaluable to human comfort. But our track is blocked again, and we will only mention the sulphurets and then close this screed. Sulphur forms compounds with the alkalies, with ammonia by passing sulphuretted hydrogen into aqua ammonia, with potash or soda by melting the carbonates of these alkalies. Sulphuret of potash generally comes in solid fused fragments of a yellowish-brown color, readily decomposed by expósure to the air and moisture, being converted into sulphide of hydrogen, hyposulphite, sulphite, and ultimately sulphate. These sulphides are used mostly in photographic work to recover waste silver, though in some cases in intensifying plates.

It is difficult to boil down the subject of sulphur and its compounds to so small a compass, as there is so much romantic interest connectedwith them. Whole books could be written to show their origin, fabrication, and methods in which they are essential to the uses of man.

A Few Photographic Points about the Yosemite Valley.

EXTRACTS FROM AN ADDRESS BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA, DECEMBER 7TH, 1887, BY GEORGE VAUX, JR.

With so much that is stupendous, grand and beautiful, the chief difficulty which one has to encounter is in knowing how to put in his time to the greatest advantage in order to get views of the more celebrated and interesting points. Winding along through the fine old forest, occasional extended panoramas are obtained of the valley of the Merced River, which flows the whole length of the Yosemite, and, leaving it, wanders on amidst mountain ranges to the level expanse of Central California.

Presently through the trees you catch glimpses of a mountain with square cut and perpendicular faces. It is El Capitan. A short distance further the stage stops at Inspiration Point, where the first good view of the Valley is obtained. It is spread out at your feet, and though, owing to a turn in it, the further end and about half of the north side are not visible, you will want to make an exposure or two, showing Bridal Veil Fall, the Three Graces, Sentinel Rock and Dome, the South Dome, Cloud's Rest, and to the left close at hand, the enormous mass of El Capitan. Unless you should happen to have as stage companions a very crusty party, you will find no difficulty in geting a sufficient delay to accomplish all that is necessary, and as the light is admirable at the hour the stages usually pass—about noon—it is best to make the most of it then, for the nicest route on leaving the Valley is to follow another way.

Zig-zagging down the mountain side where it would seem almost impossible to build a road, the surrounding walls appear to gain rapidly in altitude. About three-fourths of the way down to the level of the floor is Artist's Point, from which a somewhat similar view is obtained from that at Inspiration, though of course you are looking up to the summits of the various high points, instead of viewing them from more nearly on a level.

Having made the descent, the Bridal Veil is the first point of interest. Leaving this, after passing El Capitan, the Three Brothers, and finally the Yosemite Fall come into view. You are now nearer the upper end of the Valley, and here all the hotels are situated.

By all means do not hurry, but should you be pressed for time, it is possible to get all the most important views in a very short time considering their number.

You reach the hotels about half past one, and will then have the afternoon to look around in a general sort of way.

But before planning in detail, I will just say a word as to the time of year. Let this be as early as the roads are good, say the middle or end of May, varying with the season. As all the streams around the Yosemite are fed by melting snow, if you want to see the water-falls in all their magnificence this is important; for by the middle of June many of them are dried up, and two months later those that are left are comparatively mere dribbles.

The next morning after your arrival, retrace your steps down the road you followed the day before. A mile and a half is about as far as you will care to go. During this trip you get the Cathedral Spires and Rocks to advantage, also the upper side of El Capitan and Three Brothers. The light on the lower side of the former is better in the afternoon, so it is not worth while to go further than is necessary to get the Cathedral Spires. For El Capitan there is the favorite position, showing the Merced in the foreground, which always makes an effective picture. You will have no difficulty in finding the place, as it is but a short distance from the road and easily accessible. If you have timed your excursion properly, this will bring you back to the hotel by about eleven o'clock without hurrying.

The Yosemite Fall is the next thing in order. Perhaps the finest view to be obtained of it, without showing any disagreeable or unharmonious surroundings, is in a meadow by the river bank. Just the right point is a little hard to find. You cross the field in front of what is now Cook's Hotel, following the path for some distance, and then turn to the left till you reach the river, up which you keep till you are certain you have gone too far. Then keep on a little further, and you will come to a point from which the 2600 feet of the fall is in splendid view, framed by trees, a vista cut through which makes this position available. An upright view from this point takes in the river in the foreground, and the Fall covers enough of the plate to make shutter-work quite satisfactory. Among its chief beauties are its ever varying moods as it is swayed back and forth by the wind, whose power on a column of such a length is enormous. Between eleven and one o'clock is the best time for this view. The Lower Yosemite Fall alone also makes a very effective shutter-picture; but owing to its location, it also must be taken in the morning, as it is the first part of the Fall that the sun gets off of, so that unless you have the early part of the day for it alone, you will probably have to be satisfied with a distant view, where it forms but a part, and a small part at that, though over 500 feet high. Should you go there in the morning, however, follow up the trail till you come to an enormous boulder, to the left of which you pass. From just alongside of it a good upright view can be gotten. A viewing lens of the ordinary angle will just take it in nicely. The trip down the valley will pay better however if you have to make a choice between the two.

About two or half-past two take a carriage and drive up the Valley a short distance, cross the river and turn down again. Just after crossing the bridge a very fine view of the North Dome on the one side, and its riven companion, the South or Half Dome, on the other can be obtained. Down about a half a mile further you can get Sentinel Rock to advantage, with a rustic foreground, though there is a rather better point down a little further. From near where the short branch road stops, which leads to the foot of the Yosemite Falls, an effective wide angle picture of the Falls is obtained, but the point of view is not so attractive as that from the river bank.

It is a little below this point, on the main road, that the view of Sentinel Rock, referred to above, with the river in the foreground is obtained. Not far from the same place, but a little further on you can get a magnificent mirror view of the Three Brothers, early in the season only, for the reflection is in a sort of puddle which soon dries up I believe. Down still further you get a superb view of the square façade of El Capitan. By this time in the afternoon the light is just right.

Crossing the river once more you come out at the foot of the Bridal Veil Fall, the light being full on it. In the afternoon the most beautiful of rainbow effects are produced. From among the rocks between the road and the foot of the Fall a number of fine positions are attainable, though some old pine trees so close at hand as to detract from the height of the Fall are difficult to manage, owing to the rough character of the ground. A little perseverance will overcome them however. The return route to the hotel is the same as has been already traversed more than once.

For the second day by all means take the trip to Yosemite Point, an eminence just above the summit of the Yosemite Fall. It is not necessary in order to get the light to make a very early start for this trip, say 7.30 or 8 o'clock, and do not be persuaded not to take lunch along with you. The trip will take longer than you have anticipated, if you are loyal to your camera, for there are many fine views from the trail on the way up. For a time you are among the underbrush and can see but little, but after gaining an elevation of about 1,000 feet, you come out at Columbia Point, from which you may get a very fine view up the valley, embracing near at hand the Half Dome and Cloud's Rest, while stretched away beyond are the rank and file of the High Sierra, all more or less snow clad, if you are only early enough in the season. The light will be better for this view during the descent.

Continuing a short distance you come to a level space, on about the same altitude as the foot of the Upper Yosemite Fall. If you reach this point on the return not later than half-past two you can get a fine shutter view.

The trail now zig-zags up a very narrow and steep side canon. It is hard work on both nerves and strength, because you feel as if you were going to slide off of your horse. An hour more will bring you to the top, whence by a short walk, followed by a scramble along a narrow ledge where one misstep would send you down a quarter of a mile or more before you would strike, you reach a place where you can look immediately down upon the top of the Fall. There is no room for a camera there however.

Crossing the creek just above the falls and continuing half a mile or more over a disintegrating ledge of white granite, you reach Yosemite Point. Here there are fine views in both directions, showing the valley lying at your feet, with the High Sierra, with which you are now more nearly on a level, in the background. Almost immediately opposite you is Glacier Point, so named apparently because there isn't any glacier there.

You can continue this trip to Eagle Peak, the highest of the Three Brothers, but from all I could learn it is doubtful if it would pay for the extra fatigue.

Whilst the afternoon sun is on the Fall the rainbow effects are beautiful and should not be missed. On the descent the light will be good, though, as I said before, do not leave it too late to get the

Upper Fall, or the Three Brothers will have cut off the sun. Sometimes people try to make this trip in half a day, and it is, of couse, better to do it so than not at all, but a whole day is much more satisfactory.

For the last day, according to my plan, you will need every plate you can arrange for. Making an early start you take a wagon and drive to Mirror Lake to see the sun rise. Before the first ray strikes the water the reflections are wonderful, and by a little activity you can get all the principal ones before the sunlight spoils them. This done the wagon takes you to the foot of the Vernal and Nevada Falls trail. Here you should have arranged for saddle horses to meet you. Before mounting, get the view of the North Dome from the bridge over the stream, with the latter and the majestic trees on its banks as a framework for the mountain; also from just beyond the bridge a very effective view of Glacier Point.

A short ride up a good trail brings you to the Vernal Falls. The light on these is only good in the afternoon, so that at this time of the day the view is unsatisfactory, but by delaying as long as the guide will allow, you may be able to get a picture.

Remounting, a steep scramble followed by a descent takes you over a ridge from just beyond whose summit a pretty panorama of the Nevada Fall, Liberty Cap, and Mt. Broderick is obtained. The view of the back of the Half Dome is also very good, but there are finer ones later.

Mrs. Snow, who keeps the little Casa Nevada, will soon get you up a very comfortable lunch, and while she is preparing it, or better if there is time, after you have lunched, you will have a grand opportunity to get the Nevada Fall to perfection, perhaps the most exquisite waterfall in the world. The best view is from near the foot of a large pine tree on the foot path from Snow's down to the stream. Do not fail to follow on across the log bridge and up as close to the Falls as you can go without getting soaked. The view will very well repay you, though there is no opportunity for a picture owing to the spray.

The trail follows up a very steep canõn a short distance from the Falls, doubtless once the bed of the stream. While the ascent lasts it is probably the steepest that you will encounter during the trip to the Valley, unless you should climb some of the higher monntains. If you have a good head, get the view down on top of the Fall from the summit. The place from which it is obtained is a very dangerous one, but by lying down flat there is but little risk.

From this point there is a long ascent, but among the trees can be caught many fine views of the Liberty Cap, Half Dome, Cloud's Rest, and finally of the High Sierra. Mt. Starr King is also very prominent from this trail. Crossing the Illilonette, or South Fork Canon you keep on to Glacier Point. About half a mile from the latter is the point from which to get a magnificent view of the Half Dome, though this shows the back or rounded side.

There will still be time for you to get the genial McCauley, who keeps the little hotel, to stand on the projecting rock, suspended, like Mahomet's coffin, between heaven and earth, some 3,200 feet from the latter, and have his picture taken; and possibly, if early enough in the season, also to visit Sentinel Dome, though it would be getting toward night.

You will probably find that the liverymen prefer not to have you take this trip, as it is a hard one on their horses, but there is no difficulty in accomplishing it, and with comparatively little fatigue.

If you do not care to visit Sentinel Dome you can either descend the trail into the valley immediately or stay over night at Glacier Point and take the stage, which leaves there early in the morning and connects with the regular road at Chinquapin Flat. The former method affords many fine views, but the trail though good is steep, and it will be most too late to get any photographs.

Of course there are many other points which I have not mentioned that are worth a shot, but they are far too numerous to be alluded to here.

The Mariposa Grove of Big Trees is about 30 miles from the Valley. As you stay over night at Clark's Wawona Hotel but 7 miles from them, the trip to them is usually made during the afternoon of the day that you leave the Valley, but this means to drive straight along without stopping to take pictures. It is not difficult however to arrange to take a day to it, providing yourself with a lunch before leaving the hotel. For the Grove there are no particular hints necessary except to give plenty of time. It is darker than one is apt to imagine. I found on an average view about 15 seconds on an Eastman's film with F 22 stop was about right, though of course there is considerable latitude.

In conclusion I would say that a wide angle lens is indispensable; as the heights with which you have to contend are so great that a viewing lens is, in most instances, of but little more use than to try your temper. Upon my first visit I only possessed the latter, so that I can speak from experience.

I cannot close this rambling sketch without acknowledging the kindness of George Fiske, the local photographer, but for whose kindly advice I should not have found some of the most artistic views in the Valley. He is always ready to help an amateur along, and any such visiting his domain cannot fail to derive benefit from his timely hints.

Preparation of Platinum Prints Without Development, By Direct Printing in Frame.

CAPTAIN G. PIZZIGHELLI.

Hitherto the preparation of platinum prints by direct copying has been attended with certain difficulties which have operated against the popularity of the method, the brown color of the image offering but little contrast to the yellow tone of the paper. In the manipulation of the process, Hübl and myself have in our time felt the disadvantage, and have made repeated experiments to remedy the evil, without however obtaining favorable results. I have repeatedly employed myself with this task, but it is only very recently that my efforts have been crowned with success, so as to present a process easy of manipulation, by which direct prints can be made upon platinum paper by the simple method of printing in the frame.

The principle is as follows:

1. By adding a viscous medium to the sensitive solution the penetration of the latter into the fibre of the paper is prevented.

2. By adding directly to the sensitising solution one of those substances which may be used as a developer, a reduction of the platinum salt is effected in the copying frame by the influence of the dampness of the air.

The advantages of the new process are therefore very considerable, inasmuch as there is no necessity of a previous preparation of the paper. The progress of the printing may be watched as with ordinary silver prints. Development is dispensed with. A simple and short time washing of the prints first in acidified water and then in ordinary water is sufficient to complete the picture.

SENSITISING OF THE PAPER.

Select a quality of paper smooth or

grained according to taste, Rives & Steinbach's, of Malmedy, to be preferred. The best material for making viscous the sensitising solutions I have found to be a solution of gum arabic and arrowroot. The former yielded me better results than the latter.

The proportions are as follows:

I.	Gum arabic, ...	50 g.
	Distilled water, . . .	100 c.m.
II.	Arrowroot, ...	2 g.
	Distilled water, . . .	100 c.m.

This last is made into a paste as usual.

Before using mix.

Sensitising solution . .	2 volumes.
Gum solution (I.) . .	1 volume.

OR,

Sensitising solution .	1 volume.
Arrowroot paste (I.) .	1 volume.

The mixture is well stirred or rubbed to a fine homogeneous consistency and strained through muslin.

This mixture is applied, the paper dried and kept in the chloride of calcium tube as in the old platinum process.

The Sensitising Solution is made as follows:

1. The Iron Solution.

To the normal iron solution is added in the dark, with repeated shaking, as much neutral oxalate of soda or ammonium as will dissolve at ordinary temperature.

The proportion of the above salts is as follows:

Normal solution of iron . .	100 c.m.
Neutral ammo. oxalate . .	18–20 g.

OR,

Normal iron solution . . .	100 c.m.
Neutral sodium oxalate . .	15–18 g.

The original brown gray color of the Ferri-oxalate passes, in consequence of the formation of the corresponding double salts, into a beautiful emerald green. The point of saturation is known by a slight turbidity of the solution. The operation is discontinued immediately upon the manifestation of the turbidity, the mixture shaken for a little while, set aside, and finally filtered.

The proportion of either of the above solutions to the Platinum solution is, 1–6.

The formula for ordinary conditions is:

Platinum Solution 1–6, . .	24 c.m.
Ammonia Iron Solution or Soda " " . .	22 c.m.
Gum Solution I.	23 c.m.

With the use of the ammonium oxalate the image is blue in tone; the sodium oxalate gives brown tones. The former also gives weaker pictures than the latter. As regards sensitiveness I have not noticed material difference. I cannot definitely speak of the durability of the paper, inasmuch as only a few weeks have elapsed since my experiments. Paper which has been preserved since that time, however, shows no deterioration whatever.

The addition of chlorate potassa may be made as in the old process. Of the effect of an increase or diminution of the amount of iron in the sensitising solution I cannot definitely speak without first making experiments.

The copying of the prints offers no difficulty. A certain dampness of the paper is necessary to success, as is the case with silver paper.

The paper after removal from the chloride of calcium tube should be laid about for some time in the dark room before use to imbibe a certain amount of moisture.

Either print until the image comes up fully. The impression must not be any stronger than is looked for in the final result.

Or, the printing is continued only so far as is necessary to bring out the entire picture, or there will be a falling off in the half tones. The print is taken from the frame and developed in a weak, cold solution of the tartrate, oxalate, citrate, or carbonate of potassa or soda.

A good developer is made as follows:

Saturated Solution Soda	5 c.m.
Distilled Water	100 c.m.

The print is dipped in this and allowed to remain until all the details come up.

The printed and developed pictures are next placed in a bath consisting of

Hydro-Chloric Acid	1 c.m.
Water	80 c.m.

until the yellow color of the paper disappears, and then washed for ten or fifteen minutes in water.

The Photographic Society of Philadelphia.

A stated meeting of the Society was held Wednesday evening, December 7th, 1887, with the President, Mr. Frederic Graff, in the chair.

The Secretary read a communication from the Liverpool Amateur Photographic Association, announcing an International Photographic Exhibition to be held in March, 1888, and inviting members to send exhibits.

The death of Mr. Evan Randolph, an active member of the Society, was announced by the Secretary.

The Committee on Membership reported the election of the following active members: Messrs. Henry J. Hand, Emlen Cresson, Dr. Wm. Thomson, and Theodore Fassitt.

The Committee on Celebration of 25th Anniversary reported that in accordance with the plan proposed at the special meeting called for the purpose, a reception in honor of the event was held by the Society at the Penn Club House, on the evening of November 26th, the 25th Anniversary of the date of organization of the Society. In addition to invitations issued to members, a number of distinguished persons interested in photography throughout the United States and Great Britain, including officers of some of the more prominent photographic societies, were invited to be present. The evening was pleasantly passed in social intercourse of an informal character, relieved and enhanced by a collation prepared by the caterer of the Penn Club.

The Committee on American Lantern Slide Interchange requested members to prepare slides immediately for the purpose, so that they might be ready for forwarding to the other Societies at the earliest possible date. A circular on the subject would be issued in a few days.

Nominations for officers and committees for 1888 were made, after which Mr. Bartlett moved that the Society hold a public exhibition of lantern slides during the coming Winter, and that a committee be appointed to arrange all details in regard to same; carried. The Chair appointed Messrs. G. C. Morris, W. A. Dripps and W. H. Rau.

Mr. John Bartlett read a paper on "The Short-Comings of Photography in Relation to Art," followed by Dr. Ellerslie Wallace, Jr., on "Composite Photography." Both papers elicited great interest from those present.

Dr. Howe, admitting what Dr. Wallace had said in regard to Composite Photography not producing the type portraits claimed, referred to its use in detecting forged signatures proposed by Francis Galton, as one which seemed to have a practical value.

In the case of genuine signatures the pen strokes which were most habitual and gave character to the signature, were most pronounced in the resulting composite, while in forged signatures the errors made in imitating these strokes could readily be seen,

Mr. Walmsley called attention to the value of Orthochromatic plates in Photo-Micrography as follows:

In common with other workers in this department of Photography, I have long felt the short-comings of all ordinary gelatine plates in rendering the true color valuations of very many microscopic objects, especially those of animal and vegetable tissues, prepared by the modern methods of single, double or even triple staining. Blue, and light violet stains, (so largely in use), were valueless for photograpic purposes, and many of my most interesting preparations could not be reproduced by the camera.

Among others, which I have at various times fruitlessly endeavored to photograph, is a beautiful dissection of the sting and poison sac of the Honey Bee; in which the sting and all external appendages range in color from a bright yellow to dark orange brown, whilst the delicate membrane of the poison bag or sac is stained a bright, delicate blue. The impossibility of making a satisfactory negative from such a preparation on an ordinary gelatine plate will be apparent to every one. I have placed the specimen upon the table and invite all present to examine it for themselves.

I have probably made not less than a dozen exposures upon this specimen, under very varying conditions, as to make of plates, lighting, and length of time, but, with invariably unsatisfactory results.

If the exposure was long enough to give any detail in the darker portions, the blue sac was entirely overdone and obliterated; if on the contrary the time was shorter to suit this portion of the subject, the others were mere silhouettes, so that I gave up the attempt in despair. You will see by the negative now to be passed around, and which is by all odds the best I made on ordinary plates, how utterly unsatisfactory were the results.

A few days since, in talking with Mr. Carbutt on the matter, he suggested the employment of an orthochromatic plate, urging upon me their merits in rendering two-color valuations. I had given no prior attention to this subject, other than reading various articles thereon, which had appeared from time to time in the journals, and had no practical experience in the working of the plates. Mr. Carbutt very kindly furnished me with a package of them, and the same evening I proceeded to put them to the test on this hitherto impracticable subject; making two exposures, the resulting negatives from which I will now exhibit to you, together with prints from them, and one from a negative of same subject made with an ordinary gelatine plate. The results speak for themselves. The first exposure was made without a color screen, and the rendition of the color valuations is, as you will observe, surpassingly beyond that given by an ordinary plate. In the second attempt I interposed a screen of lemon color tissue paper between the light and the object, and trebled the length of exposure. The result is, a negative in which the printing value or capacity of the blue and yellow portions of the specimen are precisely the same; whilst most of the details in the darker brown and orange parts are well brought out.

This gratifying result is so remarkable and interesting, pointing to such an important use for these plates, that I have felt impelled to bring the subject before the society, and to add my mite to the general fund of information we are all striving for.

Mr. Walmsley exhibited three negatives as referred to in the above communication, as well as mounted albumen prints therefrom, and an 8x10 enlargement on Bromide paper under a microscope. Upon the table he also showed the preparation magnified 24 diameters, the same power as that employed in making the photograph. After the lights were turned down, a lantern slide of same subject was exhibited upon the screen.

Mr. Bellsmith, of the Eastman Dry Plate and Film Co., who was present, called attention of the members to a new product of that company, known as "Eastman's Transferotype Paper."

This is a paper prepared from the same emulsion as the "Permanent Bromide Paper," but in such a way that after developing and washing the contact or enlarged print, it may be laid face down upon any object upon which it is desired to transfer the picture, and after drying under pressure, the paper can be removed by the application of hot water, leaving the print upon the object where it was desired. Transfers may be made in this manner upon opal glass, china plaques, tiles, lamp shades, glass for transparencies and lantern slides, canvas for artists' use, engravers' blocks, &c. Several specimens showing the various uses of the paper, were exhibited by Mr. Bellsmith, and were examined with great interest.

The evening was concluded by an interesting narrative by Mr. Geo. Vaux, Jr., of some "Photographic Experiences in the Yosemite Valley and other parts of the West." A large number of slides were shown on the screen by Mr. Vaux, which graphically illustrated his narrative. The negatives were made on Eastman's films, and were of excellent quality. Many were made from points at high elevations, and rarely visited by photographers.

Adjourned.

ROBERT S. REDFIELD.
Secretary.

DR. ARTHUR H. ELLIOTT, associate editor of Anthony's Bulletin, was married to Miss Kate Paulding Uglow, on Thursday, December 1st, 1887, at New York.

A SPECIAL meeting of the Amateur Photographic Society of Pottsville, was called for Saturday night, December 3d, at the house of Mr. E. F. C. Davis to meet Messrs. W. H. Rau and George W. Ennis, of Phila. A pleasant evening was spent looking over the work of the travelers. Mr. Shaffer showed an ingenious vest camera which is made in Germany. It has a focusing arrangement and holds five small *square* plates instead of the one round plate used in America. One of the travelers showed a shutter of his own construction for both time and instantaneous exposure. Mr. Davis used a new dissolving lantern, contructed by himself. The light is fed from tanks of gas in the basement, which are arranged ingeniously to give an even and regular pressure. It worked admirably. The meeting closed with an exhibition of lantern slides, some contributed by the members, others by W. H. Rau, made from his negatives. A description was also given of the journey to Petra, the pictures of which were made by W. H. Rau.

THE Eastman Company has just introduced a novel and most beautiful style of photograph. It is called Transferotype Paper. It is easy of manipulation and the results obtained are most charming. It resembles the ordinary bromide paper, but differs from it by being transferable to glass, porcelain, silk, canvas, etc. It is not necessary that the surface to which it is transferred be flat. It may be adapted to any curveature, and so may be made useful in decoration of lamp shades and other ornaments.

Transferred to canvas it presents a beautiful appearance and offers a suitable surface for artistic coloring.

Contact or enlarged prints are made upon this paper in precisely the same manner as upon the well known "Permanent Bromide Paper" (the same emulsion being used for both). After washing the print is laid face down upon the object to which it is desired to trans fer the picture; after drying under pressure the paper is removed by the application of hot water, leaving the print upon the object where it was dried. The operation is simple, easy and certain.

The Transferotype paper will become popular at once.

EDITOR AM. JOUR. OF PHOTOGRAPHY:

By unanimous vote of the Executive Committee of the Photographers' Association of America, the subject "Hiawatha" has been selected for illustration in making pictures for the Blair Prize Cup Competition for the Convention of 1888.

H. S. BELLSMITH,
Secretary.

THE Photographic Society of Philadelphia celebrated its twenty-fifth Anniversary on the evening of November 26th, by an informal reception at the Penn Club House. About ninety members gathered together and a very enjoyable evening was passed in conversation. A collation was served, the table being graced with a camera sculptured from a block of ice.

The Philadelphia Society is the oldest in the country, and numbers amongst its members many whose names are associated with the progress of the science during the last quarter of a century.

A CONTEMPORARY in commenting upon photographs of rainbows, speaks as if they were rather novelties, possible only for the highly sensitive gelatino-bromide film. We are not very old in the art, but have quite a decided recollection of some fine atmospheric effects, the rainbow included, obtained by the old wet collodion process.

The following extract is from the San Francisco *Evening Bulletin* of February 12th, 1868:

"A new Yosemite series has recently been taken by a photographer, who hides his name under the significant classicism of "Helios." These views are taken from fresh points selected with a nice regard to artistic effect, and illustrating the valley and its cliffs and falls more variously than any previous series. There are effects in some of the views which we have not met before. The plunging movement and half vapory look of cataracts leaping 1000 or 1500 feet at a bound are wonderfully realized. Across some of the falls the arching iris is seen, colorless but suggestive, like the beauty of a dead face—the form is there, only the tint and the play of nature is lacking. The cloud effects are caught with capital success. Around and across some of the granite peaks hang wreaths of vapor, transparent and full of airy lightness. In one view the sun, the splendor of his disc veiled by a cloud that yet shows all his form, is made to take his own portrait and mimic in shadow the "profuse rays" which he shoots arrow-like athwart the dusk."

THE Instantaneous Flash Light is destined to be something more than a passing novelty. Judging from the excellent results so far obtained, it looks as if the day were not far distant when it would be called into active service by the professional, to secure pictures of people in evening costumes at their homes, and as a supplementary illuminator for dull daylight exposures.

The duration of exposure is but a fraction of a second, and but little ingenuity is required to secure a pleasing lighting of the sitter. Or course no head rest is needed, and the pose is natural. There are no harsh lights nor abrupt shadows if the illumination is properly managed. Besides its application to portrature, it will no doubt be of value in other photographic processes. For copying engravings and pictures in white and black it is most excellent, giving sharpness and distinctness by the evenness of the illumination.

From some experiments which are being made, we are led to believe that it will also play an important part in orthochromatic photography. The various colored fires which may readily be produced, the reds and the yellows, are, notwithstanding their so-called adactinic colors, remarkably rich in rays which influence the sensitive film, so that the reds, yellows, and other tints usually translated black, can be represented in their proper relations.

It may therefore prove invaluable for the copying of oil, paintings, etc. We believe there is a brilliant future for the Flash Light.

The light from burning magnesium is rich in chemical rays. Bunsen & Roscoe in 1859 *Philosophical Transactions* determined the chemical activity of the light as compared with the sun. They showed that a burning surface of magnesium wire, which, seen from a point at the sea's level, having an apparent magnitude equal to that of the sun's effect at that point, has the same chemical activity as the sun would have if shining from a cloudless sky at the height of 9½° above the horizon. On comparing the visible brightness of these two sources of light it was found that the brightness of the sun's disk, as measured by the eye, is 524 times as great as that of burning magnesium when the sun's zenith distance is 67° 22′, while at the same zenith distance the sun's chemical intensity was only 36½ times as great. Hence the great value of the light in photography. A burning magnesium wire of the thickness of 0.297 mm. evolves as much light as 74 candles of which five go to the pound. It has been calculated that 0.120 of a gram of wire of above size is burned in one minute. To produce light equal to 74 candles burning 10 hours, whereby 20 ℔s of stearine would be consumed, it would need about 72.2 grains or 2½ ounces of magnesium. In a state of fine division its activity is increased, and when supplied with oxygen, as in the new mixtures, its value is greatly augmented.

A DALLMEYER Portrait 4 D Rigid Mounting, in perfect condition, very rapid. Listed at $108.00, will be sold for spot cash, $68.00.

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WANTED—One-sixteenth size Gem-Tubes. T. H. MCCOLLIN & CO.,
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WANTED—A young man would like position under the light: gained his knowledge of the business at Gilbert & Bacon's, Phila. Address K., care Thos. H. McCollin & Co., 635 Arch St., Phila, Pa.

WANTED—A Ferrotype Camera with 36 Lenses, to make 36 pictures on a 5x7 plate with one exposure.

Also a Ferrotype Camera with 18 Lenses, to make 18 pictures on 5x7 plate with one exposure. Address A. R. J., care of Thomas H. McCollin & Co., 635 Arch St., Phila., Pa.

GET the new C. B. Combined Permanent Intensifier and Reducer for Gelatine Plates.

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FOR SALE.—Gallery in good location, only one in town. Reason for selling poor health. Address A. R. H., care Thos. H. McCollin & Co., 635 Arch St., Phila., Pa.

A RARE CHANCE FOR A BARGAIN.—A Dallmeyer Portrait 2 A Lens, with Rack and Pinion, *very rapid*, having been used for taking Animals in rapid motion, in perfect condition, nearly new. List price, $148.00, will be sold for spot cash, $90.00.

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Accessories:

1—8x10 Exterior Ground, good condition, ...	10 00
1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to	$4 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new	30 00
2—Spencer Head-rest	11 00
1—Pharaoh Position Chair . . .	16 00
1—8x10 Eastman's Roll Holder, good as new	20 00
1—8x10 Hough's ground, light left of sitter	12 00
1—8x8 Seavey Ground, new, light right	15 00
British Journal Almanacs for 1878	20
Photo Mosaics for 1883, ...	20
1—No. 72 Osborne bridge good as new, ...	8 00
1—8x10 Plain ground	4 50
1—Bryant rustic gate	4 00
1—Seavey balustrade	14 00
1—Queen Anne baby lounge . .	8 50
1—Rustic corner chair	5 00
1—8x10 Perfect camera stand .	6 00
1—Knickerbocker stand, with 14x17 top	12 00
1—8x10 Osborne's interior background, new, light left . . .	20 00
1—4x8 Osborne's side slip . . .	7 50
5x8 orange glass developing trays	35
Negative boxes, odd sizes, each .	20
1—Adjustable arm Position Chair	12 00
1—Position Chair, rising back .	8 50
1—Osborne stile, new	4 50
1—4oz. Porcelain mortar and pestle	35
1—6 in. Porcelain mortar and pestle	50
2—4x5 Japan trays and plate lifter, lot	20
Pearl leads, the best retouching point in the market, each .	15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each	1 35
Job Lot Fine Cabinet Plush Frames, each	60
2—5x8 Instantaneous Shutters, new, each	5 00

8x10 Job Lot Picture frames; write for particulars.

Desiring to reduce our stock, we will sell for a short time.

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5x6 Woodbury Dry Plates . . .	80
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Camera Boxes:

1—5x8 Blair outfit, good as new,	10 00
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1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder	6 00
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1—10x12 Cone View Camera, Double Swing, new	52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new	44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new	46 00
1—¼ size Portrait Camera . . .	5 00
1—4x4 Standard Portrait Camera with holder, new	14 75
1—4x5 Flammang revolving back Camera	25 00
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1—6½x8½ View Camera and Lens	12 00
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod .	25 00
1—6½x8½ American Optical Co., first qual. View Camera . .	23 00
1—4¼x5½ Ex. qual. Portrait Camera	17 50
1—5x8 American Optical Co., Stereo Camera	25 00
1—6½x8½ Standard Portrait Camera, with holder	13 60

1—5x8 Blair View Camera, single swing	17 00

Lenses:

1—14x17 Harrison wide angle view	18 00
1—4x4 Tench Portrait Lens. This was made by Dallmeyer's foreman and is the same combination as his No. 3, A list, $224.00, will sell for	90 00
1—Finder	3 25
1—Prosch Shutter, No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—Matched pair imitation Dallmeyer Lenses,	12 00
1—5x8 Dallmeyer View Lens	15 00
1—Woodward Condensing Lens.	10 00
1—4x4 Darlot Globe Lens	25 00
1—4x4 " " "	20 00
1—5x8 Abendroth wide angle view lens	18 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—½ size C. C. Harrison portrait lens	5 00
1—¼ size portrait lens	3 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	40 00
1—4x4 Voigtlander Portrait Lens.	20 00
1—Extra 4x4 Chapman Portrait Lens	20 00
1—8x10 E. A. View Lens	5 00
1—5x8 Darlot View Lens	2 00
1—4x5 Harrison & Schnitzer View Lens	2 00
1—Ross View Lens	5 00
1—H. Fitz Double View Lens, revolving stops	8 00
1—5x8 R. O. Co. Lens, good as new	3 00
1 pair Waterbury Stereo Lenses	4 00
1—8x10 Voigtlander Portrait Lens	80 50
1—4x4 Dallmeyer Group Lens	50 00
1—4x4 Walzl Portrait Lens	20 00

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The present complete lines are all new and very fine in design and finish. The Papier Mache Accessories are painted in flat oil, which retains all the beauties of water color without any of its derangeable features. They will not rub out or smell, and are vermin proof. Backgrounds painted in oil, if desired. I am making a set of Permanent Mixed Paints for touching up damaged backgrounds and Accessories. Photographs mailed on application, but must be returned.

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